THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXIV. SATURDAY, JUNE 2, 1894. NO. 22.

ORIGINAL ADDRESSES.

MORPHOLOGY AS A FACTOR IN THE STUDY OF DISEASE.[1]

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NOT long ago I heard a gentleman congratulate a distinguished professor of Greek on the ground that the subject of Greek literature was finished, that is to say, was one to which from the nature of things no important additions could be expected. Any one not a special student of the classics might be justified in making such a remark. The professor replied that he was indeed to be congratulated, but not on the ground of being devoted to a subject whose limitations were known. He then spoke of important discoveries recently made in Greek texts found in Egyptian papyri and manuscripts used in the manufacture of mummy cases. These investigations had led to entirely new conceptions of the social life of the ancient Athenians and of the characters of some of their leading authors.

In like manner the anatomist who stands on the vantage-ground of medicine is often told that by the cultivation of the last four hundred years his subject is finished—that no new thing can be said of it. Whether or not the human anatomist is to be congratulated, being thus identified, is a matter of opinion. For my part, I venture the statement that no true anatomist would be content for a moment with a science thus limited. Were he so to accept it his energies would be necessarily confined to acquiring what his predecessors had secured in an equal degree. I am sure I represent my fellow-workers when I say that the science of anatomy is awaiting important advances—not indeed by unrolling the palimpsests of tombs, or by the maceration of mummy cases, but by new readings in the infinite book of Nature.

To the physician who is busy with the practical duties of his profession anatomy is the arrangement of the structures of the adult human body by the standard of undergraduate instruction. This anatomy may be well said to be limited in the sense that Procrustes measured a giant by the length of the bed he was stretched upon; the superfluous parts were lopped off to make a fit. The text-book assumes an ideal which is properly described. The facts that exceed this ideal, or otherwise disturb it, are ignored unless they are needed by the surgeon, when they are elaborated just so far as he may dictate. "Gentlemen," said Dr. Barclay, "Vesalius and his fellows were reapers in the great field of anatomy—John Hunter and his brethren were gleaners—and we, gentlemen, are the stubble-geese!" Presentation of the facts in this wise was as well known to the old worthies as they are to us—and yet we contend that moderns can be something better than "stubble-geese." Three sciences have appeared since the days of Vesalius and of Hunter—sciences so vast as to command the time and energies of distinct bands of workers: histology, which yet awaits the discoveries of new chemicals, of apparatus of precision, and of improved means of conservation, for yet greater triumphs; embryology, which, while long claimed by the physiologist, is returning to the anatomist as his rightful inheritance; and general morphology—the most important of the three—which embraces all animated structures as parts in a scheme of philosophy.

I have employed the word morphology, for morphology is anatomy writ large; as the heading under which my remarks may be included; as one least liable to misinterpretation; and I would place within it the subject of descriptive anatomy as a conventional and unimportant part.

I confess to a feeling of impatience that the science of anatomy is still commonly taught pretty much as it was a century ago, and I cannot refrain from expressions of regret that these methods have not undergone change even in the centers which have witnessed important revolutions in other departments. The demands of the surgeon still dominate the lecture-hall. No fact that cannot be used in the clinical amphitheater is thought to possess value; the forces for the education of the medical thinker and scholar are unused; the powers of observation of the practising physician are not stimulated; the outlines of method by which the science of morphology can be extended by experiments are unthought of; while the opportunities of accumulating at the hands of the physician materials to be used in the explanation of phenomena of organic structure acting perversely, or serving as the causes of diseased action, are neglected.[1]

It is true that these and similar facts are in the possession of advanced clinical workers, but they often

[1] Read before the Congress of American Physicians and Surgeons, at its meeting, Washington, May 29, 1894.

[1] Men who have no sympathy with anatomy and physiology are apt to declare that these sciences have no connection with clinical work, and are thus absolved from considering their claims. A physician interested in the study of speech-sounds, attempting to connect this study with clinical methods, is told by leading physicians that such work is not medical but physiological. Another physician photographs the larynx in the living individual and reports his work before the laryngological section of an international medical congress, when the chair expresses his opinion that such work is not worth the doing, at least that it is not laryngological. The medical man who rises on the floor of a medical society to use the facts of the shape of the thorax as an aid in the study of the predisposition to pulmonary tuberculosis is declared by the chairman to be out of order in a discussion of the etiology of that disease. A member of a pathological society who proposes to read a paper on the anatomy of the cerebrum in connection with localization of diseased action is crowded out by a combination of the members on the ground that a pathological society is a society of clinicians and not of anatomists.

appear under heads not suggestive of their exact position in knowledge. Many important considerations are scattered through hospital reports, treatises on practice, or the transactions of pathological societies. Sometimes they are veiled under misleading titles. The actions of muscles have been held to be always corollaries of the descriptions of the muscles themselves, indeed to be logical deductions from the formulæ of their origins, insertions, and nerve-supply. Yet these facts are wrested from anatomy under the name of physiology of movements. Such a classification would bear to physiology the relations which obtain between the structure of bone and the dynamics of the skeleton, the studies of the eruption and succession of the teeth and the rates of growth of organs. Teratology is generally cultivated by obstetricians, and, if students of medicine were taught this subject it is as likely as not that it would be undertaken by the Chair of obstetrics, and thus a purely morphological series of demonstrations be not credited to the department of anatomy.

It is evident that physicians who become interested in these and allied subjects obtain their knowledge, so far as it relates to the elucidation of medical problems, after their academic education is completed. Is it not entirely proper that they should be carefully instructed in them before graduation? Is it not patent that the difference between the imperfectly educated and the accomplished physician can be determined by the use of the test of being able to interpret morphological factors in the study of disease, as well as by any other test of efficiency?

Empirical knowledge never leads to true conceptions. The basis of just lines of association must be those established by nature. In a philosophical plan there is no such thing as a series of diseases in the sense of a sequence of organic entities except when these entities have been first established. In a word, diseases are not related to each other but to their causes. Etiology is the single factor that yields conditions which can correlate. Tissue-changes furnish truer guides than function-changes. A character is a more reliable datum than a trait. A description of an organ or part is a more acceptable contribution to knowledge of classification than that of a habit. In medicine we can, in like manner, say that a sign is better than a symptom, or, what is best of all, elaborate experimentation, combined with anatomical observations on the dead, is worth all that is possible from empirical observations on the living. In clinical work demonstrations are often lacking; tests may be absent. Indeed, the physician practically acknowledges that he never proves anything, as he refers his etiology to the chemist and the bacteriologist. I take the position that he should refer to the morphologist more problems than he is inclined to do.

It is acknowledged that chemical conditions underlie texture, and it is a matter to be regretted that the morphologist gains so little by this association of truths. Not, indeed, that the knowledge of chemical changes in tissue do not enter into his problems. He is well aware of the close connection between the chemical composition of teeth and their forms, of the great influence that the beginnings of calcification of the triangular cartilage of the nasal septum exert over the shapes of the nasal septum, as well as the immense range of changes initiated in gouty and rheumatic conditions. Exact relations are shown to exist between the chemical constitution of the fluids and the shapes of some of the organs. These changes, it is true, are often unimportant to the individual, are peripheral, and apparently of no special significance. But the general shape of the gouty tooth is, so far as it goes, distinctive, as also is the fact that the lower incisor teeth are altered slightly in their relations one to another. Sir Dyce Duckworth, in his treatise on gout, states that "buck-teeth" are not uncommon, one of the lower central incisors being thrust out of rank, as was first noticed by Laycock. I have observed these characters in a large number of cases, and am confirmed as to their correctness by dental surgeons.[1] Faget[2] believes that the teeth are especially noteworthy in persons of gouty habit. They are, as a rule, well developed, with strong, hard enamel, which is rather yellow in color. They resist decay, and are firmly set in their alveoli. In time they become more or less worn down, so that the pulp-cavities begin to be visible. Pye-Smith quotes the authority of Mr. Moore for the facts that this condition may be caused by that formation of jaws which gives an edge-bite, also in cases in which the enamel is thin on the summits of the teeth.

In like manner the nails, which are so closely associated with the teeth in all morphologic characters are of value in studying the gouty diathesis.[3] The nails, according to Duckworth (*l. c.*) "are observed to be coarse and fibrous, striated and fluted, or lined vertically, in gout. This peculiarity is well marked in most persons of the arthritic diathesis, and hence is found in rheumatic persons. The nail-substance is apt to grow thick and brittle, and especially so after attacks of gout. The nails may be shed after several local attacks. The transverse depressions, described by M. Beau and Dr. Wilks, are seen in due time after gouty as after other illnesses, indicating a temporary failure and depression of nutrition of the whole body. As an entire nail takes six months to grow, the site of these furrows indicates the date of the past illness with singular exactness. Sometimes a white line marks the attack."

If among wild animals varieties were found to vary as much among themselves as do gouty and non-gouty persons, zoölogists would be justified in defining therefrom subspecies. Why should not gout be defined as well by the results of the chemical compositions of the fluids as by these compositions themselves? Indeed, biological science teaches us that morphological data are the most reliable, and it were better to define gout and rheumatism by the peripheral characters, even if we do not derive therefrom any notable practical advantage.

So long as we study diseases, as distinguished from their causes and effects, we are empirical. We hear much of the "science of medicine." Surely it is a "so-called" science when it deals only with clinical phenomena. No medical center which is dominated by a clinical element (I am anxious here to recall that by clinical work is meant literally the bedside work, or its equivalent), the study of the patient rather than the

[1] See "The Characters of the Teeth in Persons of the Arthritic Diathesis." Journal of the Odontological Society of Great Britain, 1883, p. 193.

[2] Prin. and Prac. Med., second edition, 490.

[3] Two hundred years ago Sir Thomas Browne wrote that "tempermental dignotions and conjecture of prevalent humors may be collected from spots on onr nails."

causes which evolved the patient (or the possible study of the body of the patient, if he should be so unfortunate as to die), can be said to be an empirical one, and history shows it to be singularly liable to be clouded by speculative opinion. I respectfully submit that the theories of the humorists, the solidists, or any one of the many theories which have agitated the profession (the hosts of spectral forms that surge up to the line of blood in the limbo of medical philosophy), would have been impossible had the system of medicine been broadly based upon morphological data. But such a basis was not feasible until the organic sciences were themselves formulated. The great reputation of Boerhaave rests upon his recognition of chemical and anatomical data as aids to the study of medicine. The amount of anatomical reading he recommended his pupils showed a knowledge of anatomy which has probably never been approached by any of the authorities in clinical medicine since his day.

The changes in the shape and composition and use of a part of an organism constitute a variation—that is to say, an exception to a rule which has been formulated concerning their shape, composition, or use. The detection of these variations, and the propositions upon which they are based, constitute one of the chief occupations of the morphologist.

The difficulty of proving the value of minute knowledge of the muscle-fibers of the body is very great, for anatomists so rarely have an opportunity of making the necessary demonstrations. Let me illustrate a few of the very probable etiological factors in such conditions as esophageal pouch and heart-failure. Esophageal pouch is a yielding of the muscle-wall of the pharynx as it joins the esophagus in individuals who possess an insufficient number of the circular fibers of the lower pharynx or the beginning of the esophagus, which will in rare instances have developed an invagination of mucous membrane at the line of fault. This is a simple example of the manner by which a minute anatomic variation may become a factor in the etiology of disease. It is well known that the staying power of athletes relates more to minute inherited peculiarities in the heart than to any other group of conditions. Let a number of men subject themselves to the same physical test—it may be a walking-match or a swimming-match—it will be found (all things remaining equal) that the man with the best heart carries the day. May we not suppose that such a heart had an exceptionally firm closure of the foramen ovale and the ductus arteriosus? That it possessed powerful chordæ tendineæ? That the pulmonary artery was free from the slightest degree of stenosis? What is true of the heart is true of the muscles of the limbs. The differences that serve to mark the musculature of the mammalia are often minute, and not of necessity of the same functional importance as those of larger size, yet doubtless have significance in adapting the animal to special conditions of environment.

In an exact sense, the structure of an animal may be said to express the resultants of certain forces. In a sense, the work of the anatomist can be said to be that of analyzing the results of these forces—as one can determine from the shape of a cedar tree, whether it possesses a tall stem and conical masses of leaves, as is seen in a cultivated piece of protected valley, or whether it is short in stem (a mere brush), and with ragged foliage irregularly dispersed over twisted boughs, as one finds it on wind-vexed sand-dunes at the seacoast. But in a sense less exact, we cannot fix all the conditions. We know only in a general way that trees grown in localities contrasted by the degrees of violence of the wind will show correspondingly great differences in shapes. In order to accurately assign the work of the various agents, we must know everything of the temperature, degrees of humidity about the trees, the nature of the soil that nurtures them, and the habits of insects and birds that frequent them, to say nothing of the innate disposition that the trees may possess to naturally select from their organization what is best for their welfare. So it is with the causes of variations in anatomy. In a general way the variations themselves are held to be the results of a few all-pervading forces (as a rule, nutrition modified in some way from what is ordinarily met with, plus the trend of heredity), and these are inscribed in the body as dynamic energies may be recorded on a kymographion. But how inadequate such a record becomes is evident when we study any of these factors by the standard of the gross changes excited by disease. Disease in a morphological sense is the expression of forces operating inordinately or eccentrically. Yet how completely our systems fail when we attempt to explain them by the tests of nutrition or of heredity! So when the anatomist is told that his science to a great degree is one of record and not of thought, the answer may be given, properly enough, we think, that the reason lies in the inadequacy of knowledge of the causes of which structures are simply the effects. If the general clinical observer will give the anatomist more data as to the causes of congenital idiocy, the anatomist will be able better to explain the appearances he notes in the dissection of the idiot. If the ethnologist will explain the meanings of the divergences and contrasts of race, the anatomist will give a more philosophical description than is now possible of the differences between the structure of a Hottentot and that of a Northern European.

Thus we may say that in the study of anatomy it is not so much the fact but the import of the fact that is essential. Anatomical facts are like letters of the alphabet, their chief uses consisting in combination for the expression of ideas. Let us suppose that, instead of twenty-seven characters, the alphabet was made up of a thousand, would the conclusion be modified that the thousand signs were still to be regarded as aids to expression? The significance of anatomical facts lies not in their number or arrangement, but in the mind that guides the scapel and the forceps. A short time ago Drs. Chittenden and Sterling instituted an inquiry into the shapes of the teeth and jaws in feeble-minded children. After completing their work it was deemed desirable to make an examination of the same parts in an equal number of normal children. In the attempts to find such subjects in institutions where the examinations could be conveniently conducted, it was found after proper investigation that no establishment for the reformation of children or the care of orphans would meet the requirements of the case, for such children were not normal—in reformatories, because of the possible inheritance from the criminal classes, and in the

orphanages because of the loss of at least one parent before the time of the average longevity, introduced elements of inheritance of disease (syphilis, tuberculosis, scrofula, cretinism) which invalidated any claim that might be made that the children were normal. Thus in a matter apparently as simple in essentials as the shapes of the teeth and jaws, four unknown propositions in the study of the morphology of childhood arose:

1. What are the shapes of the teeth and jaws in the normal child?

2. What are they in the feeble-minded child?

3. What are they in the children of our reformatories?

4. What are they in orphans?

Sir James Paget has lately urged the examination of varieties in different examples of the same disease after the manner of accurate botanists and zoölogists, by the observation and record of the larger external characters and indications in the human body. Among the special subjects outlined he names the following: 1st, varieties of diseases usually regarded as species, and so arranged in nosologies; 2d, the effect of mingling of diseases by hereditary transmission or otherwise.

While the method is certainly a gain over accepted clinical methods, we venture to assert that the study of etiology is not satisfactory without experimentation. Jenner tells us that John Hunter was in the habit of saying to his pupils "Do not think: try." If we are not careful we may be misled as to the meaning of this saying. We all know that Hunter was always thinking and trying. His dictum is paradoxical unless it be thus read: "Do not stop at the thought; try the thought by the test of observation or experiment."

A zoölogical station is a place where experiments are conducted in the study of the structure and relations of animals. An anatomical station must be the same if anatomy is to take its place among the progressive biological sciences. Observation has been shown to be insufficient to interpret natural processes. We can observe the effects of an experiment of nature; we can imitate such an experiment; but we cannot ignore the method by which effects are produced. Bates discovered in the Valley of the Amazon the exact conditions under which a given species of butterfly existed, so that in studying its varieties he may be said to have witnessed the creation of a new species. Every thriving organism can be said to be results of Nature's successes in her experiments, every languishing one a result of her failures.

Let me in conclusion call your attention to a subject which, while resting on biological tenets, is of professional interest. It is that the anatomical material coming under our notice is almost always that of a highly domesticated,[1] or, as one may say, over-acclimated nature, and that in order to study it with advantage we must recall what is in common between man and the animals (both in a wild and a domesticated state) about him. Not that savage man is of necessity a primitive man; he is often a degraded, a degenerate man. The ranges of anatomical structure are on that account all the more interesting. The human anatomist should hold to the hypothesis that studies in degeneration are really studies of a character so closely allied to those that are morbid that the distinction in a system of knowledge cannot be made. Our acquaintance with man as a domesticated animal, as a degenerate animal, and our ignorance of him as a wild and primitive animal, cause the morphologist to regard human structures with the same sort of interest that the botanist entertains for those plants which have been cultivated so long that he has lost knowledge of the typical form of the species. Man has doubtless undergone changes in his organization precisely like those which exist in a domesticated animal when his organization is compared to that of an ancestral form. Can the anatomy of such an animal be said to be closed? Should we not rather humbly acknowledge that we know little of a subject at once so vast and so difficult?

Dr. F. P. Henry has shown in his classic papers on anemia[1] that the red blood-corpuscles in this disease approach those of the lower animals in many if not all their characteristics, namely, in their number, their size, their shape, and the amount of hemoglobin they carry. The number of red blood-corpuscles in pernicious anemia is reduced to a degree that is normal in the cold-blooded animals; the corpuscles are increased in diameter, occasionally nucleated and have a decided tendency to assume an oval outline. The change in the shape and proportion of the red blood-corpuscle in pernicious anemia is an instance of degeneracy mimicking the processes of normal evolution. The type of blood-corpuscle in pernicious anemia does not become identical with that which is normal in a coldblooded animal, but it resembles the ancestral shape because it has lost the form which is characteristic of its high position in the scale.

While degeneration is a phase of a specialization it is one portraying structures that fail to subserve the highest possible use in the economy, certainly a degree of efficiency lower than that seen in similar structures in animals in a wild state. Paleontology teaches us that the earlier types of horses possessed short crowns to the molar teeth, while recent horses have long crowns. These bear to one another a relation quite the same as that discernible in the teeth of man. The best molar type in the human subject exhibits long crowns, while the worst is one in which the crowns are short and, indeed, often scarcely protrude from the gums. The terms brachidontism and hypsodontism have been proposed to

[1] The use of the word "domesticated" in this sense needs explanation. The *Century Dictionary* gives the following phrase as a definition of "to domesticate:" "to reclaim from a state of nature." It also gives the following: "to convert to domestic use, as wild animals or plants." I have used the word in the sense first given. Man is "reclaimed from a state of nature," *i. e.*, he is not available as an absolutely feral subject. But he is not domesticated as dogs and horses are, since, as Darwin (*Descent of Man*, i, 112) expresses it, man "differs widely from any strictly domesticated animal, for his breeding has not been controlled either through methodical or unconscious selection." The effects of living in crowds, on unwholesome food, for numbers of generations, may not be those of domestication; neither are they of a kind comparable to those met with in the wild animal. The essential point I wish to make is this, that many morphological details result from self-imposed restraint, and that these details are to be treated in a manner somewhat the same as when met with in the process of changing a wild animal or plant into a domestic one.

[1] Philadelphia: P. Blakiston, Son & Co., 1887, p. 116.

express these conditions; and we can say that while brachidontism is a sign of an early phase of variation in the horse, it is a sign of late phase in man; that in the horse it subserves a relation to the phylogeny of the zoological group to which the horse belongs, while in man it is a sign of degeneracy due to intricate causes, prominent among which lie the profound depression of vitality arising from inherited struma, tuberculosis, syphilis, or to one or more of these conditions in combination.

In like manner the phenomena of polycuspidation in the molars relate to the evolution of the group to which a given animal belongs, and the cuspidation may be lost in the attempt to adapt the form to functions of defense. Yet if in the human molar the cusps show a disposition to recede from the quadritubercular to the tritubercular type, the result is a loss to all the previous gain. Nothing good is to be expected to accrue to the individual in which they occur. In the human dental series they are very frequently seen. We can say with certainty that the loss of a cusp in a human molar tooth is associated with decreased initial energy; and that these changes are not due, as in the case in the lower animals, to adaptation to special, and, as a rule, to higher ends.

The same remarks would apply to the proportionate size of the face as compared with that of the brain-case. The long-faced ant-eater is separated by family lines only from the short-faced sloth, and these distinctions have been brought about by the law of natural selection. But the short-faced specimens of the skull of civilized men are the results not of such a law but of the recedence from positions of high specialization secured by the operation of that law. They have tumbled from a lofty position by some profound impression on nutritive forces rather than reverted. Hence they come within the range of degenerated structures.

To what extent structures which are degenerate become on that account predisposed to disease it is difficult to say. But no difficulty exists in obtaining consent to the statement that, taken as a whole, the animal economy resists the inroads of disease in proportion as its vitalities are maintained at high levels of efficiency. It is tenable, therefore, that the different parts of the economy which resist disease are also those which are richly endowed with all the essentials of well-being. This line of thought is sustained by my own clinical studies in the diseases of the nasal chamber. Many of the exceedingly numerous variations in the shapes of the nasal chambers are examples of degenerated structures, that is to say they are degraded expressions of anatomical form due to or at least associated with a facial region which is stunted and dwarfed. If such a premise be conceded, then the next thought to my mind is logical, namely, that such structures are of necessity liable to become diseased.

We may assert without fear of contradiction that the skeleton of civilized man in like maner differs from the skeleton of uncivilized man. By civilized man in this connection I mean man as we find him to be in the great centers of population, past or present, where for acknowledged periods of unknown duration he has lived in communities having attained high grades of social organization, such as the people of modern Europe (of America so far as this continent is settled from Europe) and of ancient Peru. Doubtless Asiatic centers must be added to those enumerated. Yet of these, material for study is wanting. If I may be permitted to say in a few words what impresses me most in a series of skulls of civilized centers, it is the absence of correlation, that is to say, I find the disposition usually present in crania of wilder types of man for one part of the skull to be in harmony with another part to be largely absent. The bones themselves appear to be individualized. Let me mention some of these. The occipital bone tends to project between the lambda and the inion. The malar bone tends to elongate vertically, so that the orbit is relatively large; the ethmoid bone to extend less into the nasal chamber, so that when the middle turbinated bones are sought for in the living subject they are found to be lodged high above the plane of nostrils, and their lower borders are often oblique in position instead of horizontal. The roots of the upper molar teeth tend to be confluent, and the crowns to be elliptical in shape instead of quadrangular. Yet not infrequently a small, square orbit may be associated with an elongated jaw, or a short, set jaw with a wide, ovoid orbit.

Perhaps the best single conclusion to be drawn from the study of morphology as a factor in the study of disease is its value to humanity. The scientific study of race in connection with diseased action is almost an unbroken field. When this comparative phase of anatomy shall have been formulated we shall for the first time have a reasonable hope that the subject of human acclimatization, the geographical study of diseases, the causes and motives of migration, and thus indirectly, the history and destiny of man himself may be in shape for elucidation.

[Since the foregoing address was written my attention has been called to a paper read by M. de Giovanni on "The Morphological Examination of the Individual," an address delivered before the late International Congress at Rome. I have also received from Prof. Wilhelm Roux, of Innsbruck, a prospectus of a new publication, entitled *Archiv für Entwickelungsmechanik der Organismen.* This journal will serve as a vehicle for the expression of views much the same as those held in the foregoing address. It would seem, therefore, that the subject of morphology, especially in relation to clinical and pathological conditions, is already attracting attention.]

METHODS OF TEACHING SURGERY.[1]

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THIS paper has been prepared at the request of the Committee on Program, to serve as an introduction to a discussion upon the best methods of teaching surgery, and is intended to ask questions rather than to answer them. We have to consider: 1. Who are to be taught? 2. What is to be taught? 3. How it is to be taught.

Those who are to be taught include two classes: 1. The average medical student, who is presumably to become a general practitioner. 2. The men who wish to specially fit themselves for surgical work. There is a third class, namely, those who wish to learn only the least possible amount of surgery which will enable them

[1] Paper read before the American Surgical Association at Washington, Wednesday, May 30, 1894.

to get the degree of M.D., but these we need not consider to-day.

The surgical instruction to be given the average student depends on what he is required to know of anatomy and pathology before he begins his surgical studies, upon the amount of time which is allowed for surgical instruction, and upon the nature of the final examination which he must pass to obtain his degree, or license to practise.

In any case it should include the diagnosis, and best method of treatment, of the injuries and surgical diseases which the general practitioner is most often called upon to treat, including recent wounds and their complications, erysipelas, abscess, ulcers, etc.; fractures and dislocations, injuries of bloodvessels, strangulated hernia, urethral stricture, retention of urine and its consequences; obstruction of, or foreign bodies in, the air-passages; and also the selection and administration of anesthetics, the details of aseptic and antiseptic methods, and of methods of performing the most usual amputations, and ligations of bloodvessels.

Let us suppose that the instruction is to be given in a three-years' graded course; what other subjects besides those mentioned ought to be fully treated of by the surgical teacher? Under such circumstances is it worth while to go into the details of cerebral and abdominal surgery, of lithotomy and lithotrity, of excisions of organs or of the jaws and joints, of plastic and orthopedic surgery? Is it not enough to tell the average student what can be done in these directions, and refer him to special courses or to current literature for further information with regard to complicated and difficult operations requiring special instruments and apparatus? Of course, it is to be practically demonstrated that the teacher is the proper person to whom cases of this kind should be sent.

Deferring for a moment the consideration of the needs of the man who wishes to become a surgeon, we come to the question, "How are these subjects to be taught?" There are five principal methods: 1. Didactic systematic lectures. 2. Recitations. 3. Demonstrations and practical instruction by means of manikins, dummies, cadavers, and operations on animals, in the details of treatment of wounds, bandaging, dressings, and operations. 4. Theoretical clinical lectures, in which cases and operations are shown in an amphitheater. 5. Practical clinical instruction to small groups of students or ward-classes, in which, as far as possible, each student has something to do in the diagnosis or treatment or both.

The modern tendency is to reduce the time given to systematic lectures. In discussing the wisdom of this, we must bear in mind the different organization of the teaching staff in different schools, the increasing number of chairs or lectureships devoted to specialties, and the fact that the precise division of subjects among the instructors in a given school must depend to a considerable extent on local conditions, on the character, tastes, and teaching-powers of the different men who make up the faculty, on the amount and character of the facilities for laboratory and clinical teaching present, etc.

In the old-fashioned type of medical school, in which the whole instruction was given by seven or eight men, the professor of surgery taught what was called surgical pathology, or the principles of surgery, gave considerable attention to surgical anatomy, and was the clinical as well as the systematic teacher. There was at least one advantage, namely, that the teaching was consistent and harmonious; the student was not much bewildered with the conflicting views of different professors. The professor of anatomy was in training for the chair of surgery, and took very little interest in comparative anatomy or in embryology. There was no professor of pathology; and both the professor of surgery and of medicine lectured on inflammation, congestion, suppuration, etc., each from his own point of view.

At present, in a large and popular medical school, there are from twenty to thirty teachers of various grades; there is a professor of pathology, of surgery, of clinical surgery, of surgical anatomy, of orthopedic surgery, of genito-urinary surgery, etc., and the professor of gynecology takes a large share of the abdominal surgery.

Now how can the subject of surgery be subdivided among all these teachers in such a way that the whole field shall be covered, without involving useless repetitions, embarrassing contradictions, and the expenditure of an undue amount of time and labor by the student, or of the production of heart-burnings in some of the teachers? This is one of the most difficult problems in the organization of a large medical school which is to be really efficient and popular, and it is one to which no general and universal formula is applicable.

Theoretically, each professor being a thoroughly wise, unselfish, good-tempered man, desiring only the best interests of his pupils and of his school, and there being frequent consultations between them to secure harmony in their teachings, the desired result may be obtained. Practically there are usually two or three strong men in the faculty who settle what shall be done, and the rest find it expedient to submit, although they may not agree. When there are no sufficiently strong men, and all the professors are not perfectly good and unselfish, there may be trouble.

Let us consider details a little. A well-organized medical school should have a professor of pathology and pathological anatomy, under whose direction a certain amount of laboratory instruction should be given—comparatively simple for the average student, extended and elaborate for post-graduates. The greater part of his teaching for the average undergraduate student must be by lectures, with demonstrations.

Given such a teacher, with the necessary facilities, why should the professor of surgery lecture on surgical pathology or bacteriology to the average undergraduate? The only really good reason I think of is, that he should be thoroughly familiar with the subject, and at times use experimental methods in devising improvements in surgical practice, and that teaching the subject greatly helps him to obtain, classify, and retain his knowledge. But his teaching on this subject would be most valuable to a special class of advanced students, or post-graduates—who can devote themselves to it, and give the necessary time to that experimental work on animals which is absolutely essential to secure satisfactory results.

At all events, I think we can agree that the rela-

tions between the surgeon and the pathologist should be intimate and friendly, while each should be entirely independent of the other, and that the surgeon should go into details of practical application of principles in accordance with the more general teaching of the pathologist.

As regards the teaching of surgical anatomy, and of operations on the cadaver, by a teacher distinct from, and entirely independent of, the professor of anatomy on the one hand and the professor of surgery on the other, I believe that there are widely different opinions as to its expediency. Such an independent chair, or demonstratorship, is usually provided to make a place for some particular man, and its utility must depend upon who this man is.

While no general rule on this point can be laid down, might it not be best that attendance on such an independent course should be purely voluntary on the part of the class, and that it should be largely devoted to the instruction of those who wish to make a specialty of surgery? It appears to me that more use should be made of living animals than is now done in teaching the results and treatment of wounds, including details of aseptics and antiseptics, and in special courses for advanced students who should be required to perform operations under the guidance of the surgeon.

The next question is as to the part which clinical surgery should play in a course of education leading to a medical degree. The great majority of students prefer clinical teaching and demonstrations to didactic lectures, and will go where this clinical teaching is most brilliant and varied; and, so far as it goes, we must admit that this kind of teaching is generally the most useful to them, because they remember it better. How far is it possible to cover the field of diagnosis and treatment of injuries and surgical diseases by clinical teaching alone to the extent that it is desirable for the average medical student? And how far is it desirable to vary and modify the didactic teaching so as to make it supplementary to the clinical teaching?

Evidently the answers to these questions must depend in part upon the amount and variety of clinical material that is available, and hence must differ in different schools. As a rule, clinical material is not available to cover the entire field for any school, no matter how large its hospital and dispensaries—hence there must be some systematic didactic teaching. Is it best that this should be a complete independent course covering the whole field, merely using for any particular subject such cases as may happen on that day to be available, thus leaving the greater part of the clinical teaching to duplicate that which has been given in the systematic course? This is, upon the whole, the easiest way, and in favor of it is urged that it is desirable that the student should be told the same thing several times to insure his remembering it. This is the argument which used to be used in favor of the old plan of not having a graded course, but compelling the students to listen to the same course of lectures in successive years.

On the other hand, it can be seen that there would be certain advantages in deferring the systematic lectures until toward the end of the course, and then devoting them mainly to subjects which had not been illustrated in previous clinical teaching; but to make this plan a success it would be necessary that the systematic lecturer should either have given all the clinical instruction, or should be perfectly familiar with all that has been given.

A possible modification of this plan would be to let two professors divide the field of work, each taking a certain class of diseases and injuries, giving clinical instruction thereon and supplementing it with systematic teaching as suggested, and then the two men exchanging fields of work each year. An objection to this is that a considerable part of clinical teaching is given in connection with patients who select their own surgeon, and who will not make such selection with reference to any curriculum. Undoubtedly the more clinical instruction of the right kind that can be given, the better for the students and for the reputation and prosperity of the school.

But this phrase "clinical instruction of the right kind" brings up a new set of questions. How much does it profit the student to witness, from the rear benches of an amphitheater, such operations as the ligation of arteries, the extirpation of tumors, lithotomy, or nephrectomy? Undoubtedly the student is interested and learns something, and he will go where he can see—if not the operation itself, at least the heads of the persons who are busy about the patient; and it will not do to restrict his privileges much in this respect. At the same time, should not special opportunities be given to the few who are devoting themselves specially to surgery to see as much as possible of difficult and unusual operations? It appears to me that more than two hundred men cannot possibly obtain any special information from surgical clinics in an amphitheater which they could not obtain equally well in a didactic lecture, and which could not be much better given with illustrations by means of lantern slides, than by using a patient as a means of demonstrating an operation. It is quite possible to show by means of lantern slides, as Dr. Kelly has proved, to several hundred men, every detail of an operation which can be seen by the immediate assistants of the operator.

Now with regard to clinical teaching to comparatively small sections, or ward-classes, the members of which are to be brought as much as possible into contact with the patient, and even to assist in the operation of dressing. There is no doubt as to the utility and popularity of this mode of teaching, but in this connection a word may be said with regard to the relations of hospitals and dispensaries to surgical teaching.

While I believe that a hospital is not doing its fullest and best work if it is not increasing and diffusing knowledge, and that patients secure the best and most careful attention and treatment in teaching-hospitals, where the work of the staff is keenly scrutinized, yet it must be admitted that there is sometimes a danger that people will get the idea that in a teaching-hospital the interests of the patients are not as fully consulted as they should be, and will avoid that hospital as much as possible. This danger arises mainly from two things: first, the allowing students to have anything to do with the treatment, and especially with an operation. The patient wants to be operated on by the most skilled man, that is by the professor; and if he has a suspicion that after he is under the influence of an anesthetic the professor may hand the knife to a student to make perhaps his

first essay, he will avoid that place. All of us would do the same, and therefore in ward-class teaching a patient should never be deceived as to who is to perform the operation, for sooner or later the deception will be discovered and the news will spread.

The second danger to the popularity of a teaching-hospital is that patients are not infrequently made to wait until their cases can be used for clinical instruction, sometimes for hours, sometimes for days. In most cases the patient knows when he is put off for this purpose, and after one experience of the kind he will go to another hospital the next time, and advise his friends to do the same.

It is well also that the clinical surgical teacher should remember that his ability to obtain abundant clinical material depends to a very considerable extent upon the manners and on the good-will of some of his assistants, the resident physician, the nurses, etc., who are often the first to see the patient as an applicant, and who have much to do with subsequent treatment.

These assistants, residents, receiving-officers, case-takers, and nurses are not always possessed of the exquisite tact, kindly sympathy, and knowledge of human nature which it is to be presumed are invariably the characteristics of the clinical surgeon; and it is a part of his business to instruct them and perfect their manners as much as possible.

Recitations and quizzes are excellent methods of teaching for the majority of students, but are only well adapted to small classes or sections. At present they are, for the most part, conducted as a private enterprise by persons who may, or may not, be on the teaching staff. The question as to whether this mode of teaching should be made use of in the official course to a considerably greater extent than is now done is an interesting one, and is commended for discussion. It appears to me more desirable that it should be applied to the clinical teaching than to the didactic lectures, and one good result of this would be to discourage the reliance on quiz-compends, which I think invariably do more harm than good.

With regard to modes of lecturing, every man is, of course, a law unto himself; yet I will venture one or two suggestions. The teaching for a class of students should be definite, selective, and, to a considerable extent, dogmatic; and critical historical discussions should be used very sparingly.

What the student hears and sees during the first half-hour of a lecture is what he will remember best, and will have the best notes of; therefore, when there are several different ways of doing a thing, let the teacher describe first the method which he prefers, taking all the time required to fully demonstrate it and impress it on the student. After this is done the other methods may be referred to, and so much history and criticism given as time will permit. If the reasoning is given before the conclusions are stated, the student is apt to get confused, and to characterize the teacher as a "wobbler."

If the lecturer will fix in his mind the half-dozen questions or so that he would ask to test the students' knowledge of the subject upon which he is going to speak, and will then make it his main object to answer those questions clearly, definitely, and fully, he can hardly fail to give a good lecture.

In objecting to too much history in didactic or clinical lectures on surgery, I do not wish to be understood as underestimating the importance of giving historical instruction. I think that in every medical school a course of lectures on the history of medicine and surgery, combined with practical instruction in bibliographical methods, should be given; and if this is not done, then I would advise that the professor of surgery devote five or six lectures to the history and literature of his subject, which lectures will probably be most useful and interesting at the beginning of the last year of the student's course.

It was stated at the beginning of this paper that besides the average medical students, the needs of the man who wishes to specially fit himself to be a surgeon should be considered. These relate to post-graduate work mainly, for a broad foundation of medical knowledge is requisite for the man who wishes to become a surgeon. The technique of operative surgery, important as it is, is secondary in importance to skill in diagnosis and to knowledge of therapeutic methods which do not involve the use of the knife.

The man who intends to be a surgeon should not only make a special study of surgical anatomy, but should do a considerable amount of practical laboratory-work in bacteriology, pathological histology, and experimental pathology and physiology.

It is quite true that the majority of our leading surgeons could not, perhaps, by themselves make a bacteriological diagnosis, or determine fine distinctions in new-growths, and yet they do good work—having these points settled for them by younger men trained in the new methods. But the surgeon of the future should himself be trained in these methods, even though he may employ others to carry them out.

And in this connection I would remind you that bacteriology cannot be profitably studied for two or three days in a week, but that it needs at least three hours a day every day for three months for a man to learn how to begin readily to use its methods. In general, I think that all studies are best concentrated, and that the usual plan of dividing studies into an hour two days a week for this, and an hour three days a week for that, etc., is much more for the convenience of the professors than it is for the true interest of the students.

As for operative technique, much of it can be learned on animals, but much of it requires also work on the cadaver, the repetition over and over again, until, as Billroth said, a man could do it when he was asleep. The most important of all is residence in a hospital, the working as assistant to a surgeon, the seeing and handling of cases, and not merely looking at them from a distance. The number of men who are able and willing to carry out such a course of study as that indicated is limited, and the teacher of surgery cannot do very much for them except give them opportunities for seeing his methods and results; but is it not possible to give them better opportunities than can be provided for a large class of undergraduates? Should they not be required to repeatedly perform the many operations which can be advantageously performed on animals before they try these operations on man? It seems to me that in the last year of a four-years' course all students should be tested in this way; but it must be admitted that, with

the present curriculum, there is not time to spare for this purpose, especially when the graduating class is a large one.

This leads to two final questions, which, though not directly connected with "the best methods of teaching surgery," have, nevertheless, an important bearing on them. The first is: Are there not some subjects which occupy too much space in the undergraduate curriculum of our largest and best medical schools, such, for example, as inorganic chemistry and embryology? Ought not the student to be required to know so much as is required of inorganic chemistry before he begins his medical course? Is it desirable to make embryology and general morphology a part of the curriculum for all medical students, as a basis for the study of anatomy, or is it wiser to place these as elective studies in a post-graduate course, and to insist on more dissecting and a greater knowledge of practical anatomy than are now generally demanded? In this connection your attention is invited to the widely different opinions as to the best methods of anatomical teaching—as represented by Professor Macalister for the morphologists, and Mr. T. Cooke, for the old school, which have appeared in the *Lancet* and in the *British Medical Journal* during the past year.

It appears to me that the teaching of anatomy should begin with a few lectures and demonstrations on general morphology, and that the first dissections should be made on cats and dogs until a good technique has been acquired, so that the supply of human cadavers, which is always insufficient, can be fully utilized to the best advantage. I also think that it is unwise to have the final examination in anatomy one or two years before the other final examinations; the anatomy should be kept up throughout.

My last question is: Would it not be good policy for a first-class popular medical school to limit the number of pupils which it will accept to its capacity to give them proper instruction in laboratory-work, in practical anatomy, and in clinical medicine and surgery? Of course, each faculty is prepared to assert that its own school now does this, and will disapprove of fixing any limit to the number of its pupils; nevertheless, it appears to me, as an outsider, that there are at least two or three medical schools in this country which would act wisely if they would fix a limit to the number of students which they would receive either in the first or in the third year, or in both, and enforce this limit by competitive examination or by higher fees, or by both. It would bring the best men to them, and would enable them to do thoroughly good work.

An Epileptic Colony for Illinois.—At the meeting of the Illinois State Medical Society, held at Decatur, May 15–17, a resolution was introduced by Dr. J. B. Maxwell, and unanimously passed by that body, indorsing a proposition for an epileptic colony on the Bielefeld plan. The matter was referred to the Legislative Committee, and that committee (consisting of D. W. Graham, of Chicago; J. B. Maxwell, of Mt. Carmel; and B. M. Griffith, of Springfield) was instructed to bring the matter before the next Legislature, and use all honorable means to have such a colony established.

ORIGINAL ARTICLES.

FATAL NAUSEA AND VOMITING OF PREGNANCY, WITH REPORT OF CASES.[1]

BY EDWARD P. DAVIS, A.M., M.D.,
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IN 1888, Graily Hewitt, of London, an Honorary Fellow of this Society, contributed a paper on "Severe Vomiting During Pregnancy," in which he drew attention to anteflexion and impaction of the pregnant uterus as conditions encountered in these cases and undoubtedly concerned in their causation. It is my purpose to report three cases of fatal nausea and vomiting of pregnancy, in two of which conditions described by Dr. Hewitt were present, and in one of which a pathologic condition of suggestive interest and rarity was observed. I desire also to call attention to certain clinical signs of value in the prognosis in these cases as indicating a dangerous condition of the patient. The clinical histories are briefly as follows:

CASE I.—Mrs. A., a widow, had been treated for several months by a physician who supposed her to be suffering from chronic gastritis. An expert physician who saw her in consultation had confirmed the diagnosis and approved the treatment. Her symptoms attracted the attention of a medical student boarding in the house, who suggested to the family that disease of the pelvic organs might be present, and that a vaginal examination be made. I was asked to see the patient in consultation by the physician in charge. She was emaciated, with a rapid, feeble pulse, sordes beginning upon the teeth, her eyes sunken and glassy, her breath offensive, and emaciation well marked. She was vomiting food taken, together with mucus stained with coffee-ground material.

She complained of pain in the chest beneath the sternum. Her intellect was clouded, although usually her mind was clear. Vaginal examination revealed a uterus enlarged several times the usual size; it was retroverted, the os and cervix exceedingly soft. The finger readily entered the cervical canal, but found the internal os closed. As the patient was without systematic care, she was urged to go at once to a hospital where trained nurses could attend her. Twenty-four hours after this she was removed to the Philadelphia Polyclinic; a tampon of carded wool was placed beneath the uterus, and the patient was carefully fed by rectal injections, and stimulated hypodermatically. The uterus was readily raised, and its altered position gave the patient no increased distress. Her vomiting ceased, she retained food given by the rectum, and also very small quantities of food taken by the mouth. The tampon was removed, the fundus of the uterus brought higher in the pelvis, and sustained by a packing of gauze. The patient's general con-

[1] Read before the American Gynecological Society, at its annual meeting, Washington, May 29 1894.

dition, however, grew worse, purpuric spots appeared upon the body, sordes increased, low delirium supervened, and she died apparently from exhaustion.

Permission for a post-mortem examination could not be obtained. As the pregnancy, if present, was illegitimate, nothing was said to her family regarding its existence. The size and shape of the uterus and its consistence were those of pregnancy advanced several months, and a close examination of the history of the case supported this view. The points of clinical interest in the case were the coffee-ground vomit, and profound disorganization of the blood as evidenced by extensive purpuric areas.

CASE II.—This case was that of a woman, aged thirty years, who was first seen two years ago, and who complained of suffering caused by dysmenorrhea, accompanied by anteflexion and prolapse of the uterus. She experienced relief at that time by the use of carded wool tampons. She passed out of observation, and came to my notice again in October, 1893, stating that she had received treatment from another physician; that she had, she thought, suffered from abortion; that she was then pregnant about two weeks. I afterward learned from the physician who treated her that granular degeneration of the cervix had been present, with a greatly softened and patulous os uteri, with extreme anteflexion.

In addition to the usual discomfort of early pregnancy, the patient suffered from intense nausea and vomiting. She had always been of nervous temperament and lacking in self-control. She complained that, in addition to vomiting, she suffered severely from straining and retching. She was informed that her condition required very careful attention, and various remedies were given her; her diet was regulated, and peptonized milk, broths, and other suitable food were systematically given. She grew, however, steadily worse. As she was in a boarding-house, she was urged to hire a trained nurse, and to remain in bed or to change her quarters to a hospital where skilled nursing could be obtained. Her progressive increase in substernal pain and her persistent straining and retching seemed grounds for grave anxiety. She refused a vaginal examination, and did not appreciate the danger of her condition. She declined to accept my advice, and sought treatment from Dr. Elizabeth Greenbank, to whom I am indebted for notes of the case until I saw the patient in consultation before her death. Dr. Greenbank records that the patient's temperature was subnormal, her pulse remaining below 100, her condition exceedingly variable, substernal pain, occurring in the early evening, being especially severe. The patient finally allowed Dr. Greenbank to make a vaginal examination, when marked anteflexion with prolapse of the uterus were found. This examination greatly increased the patient's distress. She finally secured a house of her own, and accepted a trained nurse. Her pulse gradually increased in frequency, and at the end of the thirteenth week of pregnancy rose above 100.

At the end of the fourteenth week of pregnancy, I saw the patient in consultation with Dr. Anna Broomall; her pulse was 120, her temperature normal, her tongue slightly coated; she was but little emaciated. The uterus was anteflexed, the fundus low, the lower segment impacted in the pelvis. Under partial anesthesia, the uterus was raised and the vagina tamponed. Coffee ground vomit was present, although in slight amount; substernal distress, however, continued and was excessive. On the day following the replacing of the uterus, the patient's symptoms were aggravated. On the second day following the first consultation, the tampon was changed, and the uterus was found considerably higher in the pelvis. On the third day, another consultation with Dr. Broomall was held, and I urged that the cervix be dilated, and gave an unfavorable prognosis. Dr. Broomall urged that the stomach be washed out at the same time. Under chloroform, the internal os was found to be rigid, thickened, and tightly closed. The finger could not enter the uterus, and the bladed dilator was used until the finger could be inserted. This dilatation was increased by the use of the solid metal bougies until the index finger entered easily. The stomach was thoroughly douched with dilute saline solution. Following this dilatation, the patient's vomiting ceased, her substernal distress ceased entirely, and she spent the best night for two weeks. Her pulse was 130, her temperature 99°. In the afternoon, her temperature rose to 101°. At 6 P.M., a chill occurred, with temperature 102.6°. This was followed by syncope from which the patient slowly rallied. Pain and hemorrhage supervened, and I saw the patient at 11 P.M. She was excessively weak, but conscious, and complaining of labor-pains only. Her vomiting and substernal distress had entirely ceased. At her urgent request and that of her husband, it was decided to terminate the abortion at once. She recognized the hopelessness of her condition, but begged to be relieved of the pain of abortion and excessive weakness. She was accordingly stimulated by hypodermatic injections, and under chloroform the fetus was quickly removed, and the uterus thoroughly curetted with the blunt douche curet. It was then packed with iodoform-gauze, and carried well up into the pelvis. There was no hemorrhage during the emptying of the uterus; the patient rallied from the anesthetic, became conscious, but died in syncope shortly afterward.

The post-mortem examination was made by Dr. W. M. L. Coplin, in the presence of Dr. Broomall and myself, sixteen hours after death. The color of the body was yellow; the conjunctivæ were clear; the mucous membrane reddish. Slight subcutaneous edema was universally present. Rigor mortis was well marked, except on the abdominal walls, which were flaccid. The body was not entirely cold, although surrounded by ice. An incision was made from the tip of the sternum to the pubes. The subcutaneous fat was abundant, firm, and bright-yellow. The extra-peritoneal fat was also abundant. The omentum was fat, containing fatty masses along the colon. The fundus uteri was one inch below the umbilicus. The peritoneum and intestines were normal; no evidence of septic paresis was present. Both tubes and ovaries showed no gross evidence of disease.

The uterus was slightly edematous to pressure. The spleen was vascular, not enlarged or especially softened. Both kidneys were flabby in consistence, and the cortex stained bright-yellow. The liver was normal in shape, the gall-bladder normal, the liver-substance of normal consistence and bile-stained.

The uterus, tubes, and ovaries were removed. Longitudinal section of the entire uterus was made through the anterior wall. The uterus was distended with gauze, and was dark purplish-red in color, its sinuses filled with soft currant-jelly masses, not clotted. On the posterior wall, on a line extending between the orifices of the Fallopian tubes, a transverse line resembling scar-tissue could be seen. The internal os had been dilated, but was excessively resistant, resembling gristle. The placenta had been attached over the fundus and the orifice of the left tube; a small portion of the placenta remained adherent. No other portions of the ovum or appendages remained in the uterus. The uterus had evidently been curetted and practically emptied. No evidence of injury to the organ from dilatation or curetting could be detected. On the anterior and posterior walls of the cervix were areas of fibrous tissue, excessively firm, resembling that extending transversely across the posterior surface. In dilating the uterus these tissues had expanded more laterally than anteroposteriorly, although careful examination failed to reveal evidence of injury to them.

The stomach was long, narrow, filled one-half with fluid; areas of thrombosis were visible along its greater curvature. The stomach was ligated and removed unopened. The diaphragm was punctured, and an effort was made to remove the heart by inserting the hand into the chest. The heart was excessively friable. The valvular apertures admitted two fingers; no evidence of atheroma was present. The heart-substance was dark-red, very flabby, and tore easily. The pleuræ were smooth, non-adherent, and tough. The lungs were collapsed and contained air in portions; the substance was normal. One lung was removed and examined. The pancreas was apparently normal.

Especially noteworthy was the condition of the blood, which was fluid, dark currant-jelly in color, and without clots. No ante-mortem clot was found in the sinuses of the uterus. Also remarkable was the flabby condition of the heart, kidneys, spleen, and uterus, and the stained appearance of the parenchyma of all the viscera; this staining was with a dark currant-jelly fluid.

The patient died a cardiac death.

A close examination of the uterus revealed an exceedingly interesting condition of the cervix; this part of the womb was composed of dense connective tissue arranged in whorls; amid this tissue were found two cysts, one an inch and a quarter in diameter, the other half its size. These cysts contained thick, transparent, yellow, gelatinous substance, which on microscopic examination was found rich in small, ovoid cells without nuclei, the protoplasm in a granular condition. These were undoubtedly retention-cysts from retained secretion of mucous follicles. No bacteria were found in the cervix, although it is quite possible that parasitic growths were present. Microscopic examination of the liver showed the parenchyma in a state of granular degeneration. A very interesting phenomenon shown in microscopic sections of the kidneys is the presence of hyaline casts *in situ*, which are freely distributed throughout these organs. The illustrations appended, showing the cervix and cyst, and the

Fig. 1.

Vertical section of uterus, showing cyst in posterior wall of cervix.

walls of the cysts, are the work of Dr. David Bevan, Instructor in Microscopy in the Jefferson Medical College. The various tissues in the case were examined in the pathological laboratory of Drs. Coplin and Bevan.

Referring to the notes of the patient's condition during the last two weeks of her life, we find that albumin and hyaline casts were found in considerable quantities.

In reviewing the history and pathology of this case, I desire to call attention, first, to the conditions present in the pelvis: marked anteflexion of uterus, the neck of which was composed of dense connective tissue; the presence of retention-cysts in its cervix, the impaction of the uterus against the symphysis, and the excessive tenderness of the pelvic tissues were certainly irritant cause enough for reflex vomiting. The hematin-staining of the

patient's tissues, the fatty degeneration of the various portions of the body so extensively present, and the great softening of the heart-muscle, point to fatal anemia. This fatty degeneration was largely

Fig. 2.

Dense connective tissue in cyst-wall.

responsible for the fact that the patient seemed but little emaciated, and this appearance of nutrition was urged by one of the physicians in the case in support of a favorable prognosis.

CASE III.—Mrs. X. was a primigravida, the wife of a clergyman. She was seen in consultation by me at the request of Dr. Loux, of Philadelphia, who had been called in attendance a few days previously. During the first weeks of her pregnancy she had been subjected to homeopathic medication, which consisted largely of the administration of water in teaspoonful doses, and also comforting assurances regarding the future. On examination the patient was not excessively emaciated. Her pulse varied from 100 to 120; her temperature was not above 99°; she complained of very little abdominal distress, but at night suffered from substernal pain, nausea, and vomiting. Vaginal examination revealed the uterus anteflexed and low in the pelvis, but not impacted. The physician in attendance had faithfully endeavored to feed the patient in various ways, had given sedatives, and also stimulants hypodermatically, but without avail. It was his opinion that prompt emptying of the uterus was indicated. The vomitus had been streaked with coffee-ground material for two days. After examining the patient, I agreed with Dr. Loux, that inasmuch as the uterus was not impacted, but sharply anteflexed, we would gain little by simply elevating it in the pelvis. I urged that the cervix be dilated, and that if this was not followed by immediate improvement, that the uterus be curetted and packed with gauze as soon as possible. This advice was conveyed to the husband, who was distinctly informed that his wife was in a very critical condition. He asked for delay until the following day to communicate with her relatives. Immediately after the consultation, members of his congregation persuaded him that the gloomy prognosis was entirely unjustified, and strongly urged employment of a different physician. The second physician called in consultation at once supported the view of the parishioners, and assured the husband that rest and feeding and waiting were all that were necessary, quoting the familiar obstetric teaching, that "cases of nausea and vomiting of pregnancy often improved suddenly and radically, and that the practice of abortion is rarely indicated." I did not see the patient again, but am informed by Dr. Loux that the patient went steadily from bad to worse, dying from exhaustion a short time after I saw her. In her case I based an unfavorable prognosis upon the substernal pain, coffee-ground vomit, the length of time during which she had been in an anemic condition, and her general aspect, which closely resembled, though in less degree, that of the cases already described.

In summarizing these cases, their significance to my mind lies in the fatal condition of anemia which was present. The literature of pernicious anemia in pregnant and puerperal patients affords abundant illustrations of serious impairment of the blood, sometimes accompanied by ulcer of the stomach (Leube and Fleisch, *Virchow's Archiv*, lxxxiii 1124). Atrophy of the gastric mucous membrane, often associated with hypertrophied polypoid villi, is not infrequently seen in pernicious anemia, in cases in which pain and coffee-ground vomit are familiar symptoms. The condition of the heart may be partially responsible for the substernal pain in these cases, while changes in the marrow of the bones of the thorax are thought by some to produce it (myelogenic leukemia). It is also a recognized fact that, in anemia, pain may be reflected to the central ganglia of the trunk, so that the substernal distress of which these patients complain may be properly considered as a reflex from a uterus in a pathologic condition.

In conclusion, I desire to advance the following propositions, of which the cases reported are illustrations: Nausea and vomiting of pregnancy are dangerous in proportion as they induce pernicious anemia. Such a condition of danger is to be recognized by studying these cases in the light thrown

upon them by the pathology of anemia. While it is possible that sudden and radical improvement may occur in cases in which a functional neurosis is the predominant factor, only when pernicious anemia is once established is delay dangerous, no matter at what period of pregnancy the patient is seen. While it is true that raising and sustaining an impacted uterus will relieve many milder examples of this affection, cases in which danger threatens should be met by prompt dilatation and emptying of the pregnant uterus, which are to be effected by modern surgical methods.

A SUMMARY OF THE HISTORY AND PRESENT POSITION OF THE OPERATION OF CASTRATION FOR HYPERTROPHY OF THE PROSTATE.[1]

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IN the fall of 1892 I was asked to prepare an address on the surgery of the hypertrophied prostate for the coming meeting of the American Surgical Association in 1893.

In December, 1892, I requested one of my assistants, Dr. Kirby, to make a series of experiments on dogs with a view to determining whether or not castration would be followed by notable atrophy of the prostate. The thought that this was possible had been suggested to me by the comparison long ago made by Velpeau and afterward by Sir Henry Thompson between prostatic and uterine fibro-myomata.

Control-observations as to the weight of the normal prostate in dogs were begun at once. The first castration was done January 27, 1893; the others followed at intervals of a few days. The results, showing rapid atrophy, first, of the glandular and, then, of the muscular elements, were so decisive that I embodied in the paper I was writing the suggestion that castration might be a valuable therapeutic measure in many cases of hypertrophied prostate. So far as I know, the suggestion had never before been laid before the profession.

I subsequently learned of the observations of John Hunter and Owen and the confirmatory investigations of Mr. Griffiths as to the changes in and out of the rutting season in the prostate of the mole, the hedgehog, and other animals, and as to the effect of castration in various species in producing prostatic atrophy. Griffiths' observations appear to have been confined to animals already castrated for other reasons; no definite series of experiments is mentioned. He maintained, moreover, that the enlargements of the gland were not to be classed with the uterine fibro-myomata. His paper, which was written to demonstrate that the prostate is in its essential significance a sexual and not a urinary organ (a subject which has long been under discussion), contained a few illustrations, taken from various sources, of atrophy of the prostate in eunuchs. I found in addition a note by Harrison that in cases of sterility in the male the prostate had been shown to be atrophied.

No reference existed in surgical literature to any possible application of these facts to the treatment of cases of hypertrophied prostate, but they strengthened me in my decision to bring the matter up for consideration.

Theoretically, the line of argument was as follows: The prostate, while not embryologically the true homologue of the uterus, is developed from structures quite distinct from those that form the urinary passages. The structure of the prostate and that of the uterus are strikingly similar. The growth of the organ is in direct relation with the sexual life of the individual; its overgrowth occurs at a period when the sexual life is fading out, but is usually not extinct. The reproductive life ends sooner in the female than in the male, and accordingly we find fibro-myomata appearing earlier in the former than in the latter. The histology of the growths and of their varieties is remarkably alike in the two sexes. The uterine tumors do not appear after the menopause, or, if present, undergo atrophy at this time. After a certain period of life there is no increase in the tendency to enlargement of the prostate, but rather the reverse.

In the female oöphorectomy causes a disappearance of these growths and an atrophy of the uterus itself. Castration almost certainly has the same effect upon the normal prostate in our species, and I have experimentally demonstrated that it has such an effect in dogs.

The fact that we have no example of spontaneous shrinking of the hypertrophied prostate in old age may be explained by the great frequency with which the trouble causes death in such cases.

Messer's tables, founded on a dissection of 100 prostates in men over sixty years of age, disclose one interesting fact in this connection. Assuming arbitrarily that eighty may be taken as the age at which, in the great majority of men, the sexual life is absolutely and finally ended, we find that among those subjects whose prostates weighed over six drams the percentage of octogenarians or their elders was only 22.8, while among those whose prostates weighed less than six drams (many of them less than normal) the percentage was 35 3, more than half again as great. This is not only confirmatory of Desnos' observation that after a certain period of life the frequency of notable

[1] Read before the American Association of Genito-Urinary Surgeons, at its meeting, at Washington, May 29, 1894.

hypertrophy diminishes, but it suggests the possibility that in many of these cases physiologic atrophy had already begun. The subjects were not selected from among patients, but just as they happened to come within reach of the investigator.

The uncertainty as to the exact duration of sexual life in the male also weakens the force of the statement that the condition does not manifest itself until after the period of life when it should occur if it were truly homologous with the uterine growth. In addition, it may be said that there is accumulating evidence that prostatic hypertrophy begins during middle life much more frequently than was formerly supposed, and that the statistics on which we have been accustomed to rely, based on museum specimens and on the experience of surgeons to whom the patients apply only when distinct subjective symptoms have developed, are to an extent unreliable.

My view that these facts justified a trial of castration for the cure of prostatic hypertrophy was greatly strengthened by the fact that Kirby's experiments on dogs, made at my request, not only demonstrated the atrophy that took place in that species after castration, but also showed its extreme rapidity.

At the time I read the paper in Buffalo, New York, on June 1, 1893, before the American Surgical Association, my opinions rested on this foundation.

Abstracts were published during June in most of the medical journals of this country. On August 1st the paper was published in its entirety in the *Annals of Surgery*, and on September 9th a full abstract appeared in *The British Medical Journal*, that part relating to castration being unabridged.

Since June, 1893, the following communications relating to the subject have appeared:

Centralblatt für Chirurgie, No. 35, September 2, 1893. Ramm, of Christiania, reported two cases operated on earlier in the year, with marked improvement.

Ibid., No. 17, April 28, 1894. The same writer gives the dates of his operations as April 2 and April 25, 1893, and reports a practical cure in each case.

British Medical Journal, September 16, 1893. Mr. C. Mansell Moullin wrote that "the question of castration as a means for procuring involution of the enlarged prostate, raised by Professor J. W. White in his address to the American Surgical Association, deserves more than passing consideration," and stated that he had discussed it with a patient in November, 1892. He adds that "one single instance in which definite reduction in size was proved to have taken place would be of incalculable value."

Ibid., September 23, 1893, Mr. Reginald Harrison wrote, "as bearing upon the correspondence that has followed Dr. White's remarks on castration in preventing growth of the prostate," that the suggestion had been made to him by a patient some years ago, and that as a compromise he had subcutaneously divided the vasa deferentia. He knew no more of the course of the case, except that the patient was alive and well six or seven years later, and that he had "thought nothing further of it until reading Dr. White's interesting lecture."

(In the discussion that followed the reading of my paper in Buffalo, Dr. Mears asked if division of the vasa deferentia might not accomplish the same result as castration.)

Ibid., September 23, 1893. Mr. MacMunn suggested that the sexual history, past and present, of the subjects of enlarged prostate be more freely studied, as well as the conditions of the gland in different races of men and the lower animals.

Ibid., September 30th. Mr. Moullin again called attention to the importance of getting definite information as to the effect of castration upon the abnormally enlarged gland in aged persons, as he says it must now be regarded as an established fact, not only for animals but for man, that "castration in early life prevents the full development of the prostate, and in adult life causes the normally developed gland to atrophy."

Ibid., September 30th. Mr. Griffiths called attention to Ramm's cases, and added, without allusion to my paper, that "this method of treatment is no doubt likely to suggest itself to anyone who has studied the nature and function of the prostate in its relation to the sexual function." He said further that it may in some cases prove an effectual remedy, but he went on to call attention to the lack of proof that prostatic enlargement depends on sexual excitement, which had not been asserted by anyone so far as I know.

Ibid., May 12, 1894. The same writer called attention to his own letter of September 30th, and sent a translation of Ramm's latest reports of his two cases already alluded to.

Ibid., November 18, 1893. Mr. Arthur Powell described a case that he said "might be of interest in connection with Prof. White's recent address," and in which a patient with retention of urine from enlarged prostate, having undergone removal of the right testicle for a nodule, and having a small left testicle, became impotent, and obtained relief from all his urinary symptoms. Rectal examination showed "marked diminution in the size of the prostate."

THE MEDICAL NEWS, Philadelphia, December 30, 1893. Dr. Francis L. Haynes, of Los Angeles, California, announced his first operation; this was followed by two others.

In the *Buffalo Medical and Surgical Journal* March, 1894, he thus describes his cases:[1]

Following the suggestion of Prof. White, of Philadelphia, I have three times made double castrations in old men afflicted with prostatic hypertrophy.

1. Operation eighty-four days ago, in a case of two-years' standing, of moderate severity. The patient is practically cured.

2. Operation forty-seven days ago, in a desperate case, requiring catheterization every two hours, complicated by intense cystitis and by morphinism acquired as a result of frightful suffering. With the most devoted nursing this old man has improved wonderfully. Cystitis has disappeared; one third of the urine is passed spontaneously; the catheter is used about every four or five hours; morphinism has been cured; general condition good.

3. Operation fourteen days ago. Incipient case; catheterization was almost impossible because of the peculiar development of the prostate.

In a fourth case section of the vas deferens gave no definite results.

During Christmas week, 1893, I saw in consultation with Dr. F. Fremont Smith, at St. Augustine, Florida, an apparently hopeless case of hypertrophied prostate with marked sepsis, cystitis, beginning uremia, etc. I advised a trial of castration, as the condition forbade any direct attack upon the prostate. Dr. Fremont-Smith has just reported the case in a paper read before the Genito-Urinary Section of the New York Academy of Medicine. The patient fifteen weeks after operation had gained forty-five pounds, and had no symptoms of cystitis or other urinary trouble. He urinated freely and normally.

On January 31, 1894, I operated on a medical man sixty-nine years of age, who had a very large prostate, about half the size of an orange; who had passed no urine except by catheter for years, whose urine was loaded with mucus, was offensive, and at short intervals was profusely mixed with blood. At the present time, fourteen weeks later, while he has not yet urinated spontaneously, rectal examination shows a reduction in the size of the prostate to about normal dimensions. It was formerly necessary to introduce the catheter for nine and a half inches before reaching the bladder; it now goes in only eight inches when the urine begins to flow. Its introduction is easy and painless, instead of difficult and very painful. No blood has appeared in the urine for two months. The urine itself is entirely normal in appearance, odor, and in all other respects.

I have during this time suggested the operation to three other patients, all of whom have declined it on account of my frank statement that it was yet in the experimental stage and that no *promise* of benefit could be given.

The idea of castration for the relief of prostatic enlargement seems to have occurred vaguely to several persons, but certainly no one had made it public or even formulated any distinct suggestion in regard to the matter prior to my paper.

Ramm's cases, though not published until between three and four months after my paper, appear to give him the operative priority in Europe, while Haynes undoubtedly did the first operation of the kind in this country.

This, so far as I know, is the evidence existing on this subject up to this date. It would certainly seem to establish the claim of the operation to further and much more extended trial, and it shows, I think, that even on a basis of experiment and theory alone I was justified in suggesting it to the profession.

[1] White's operation: Orchectomy for Hypertrophy of the Prostate.

MEDICAL PROGRESS.

The Influence of Various Organic Matters upon the Bodily Temperature.—ROGER (*Archives de Physiologie Normale et Pathologique*, 5e sér., t. vi, No. 2, p. 246) has experimentally determined that extracts of muscle contain thermogenic substances, although it could not be established whether these preëxisted in the tissues or were developed as a result of the manipulations employed. The total arterial blood, as a rule, induced a slight antithermic effect, although sometimes it displayed a thermogenic action, viz., when obtained from a sick animal, or from one exposed to cold; in the latter case, the effect disappeared when the animal was placed for twenty-four hours in a warm medium, or if a previous bleeding of about one-fourteenth of the total volume of blood had been practised. It was found that defribinated blood, the serum, pleuritic exudates, and hydrocele-fluid induced elevation of temperature, sometimes preceded by a slight depression. Urine determined first a hypothermia, and secondarily a hyperthermia; the secondary effect was the more marked in proportion as the subject that furnished the urine had indulged in muscular exercise.

The Functional Activity of the Stomach after Resection of the Pylorus.—From personal observation, together with a study of the literature, IMREDY (*Wiener medizin. Presse*, 1894, No. 13, p. 481) maintains that the dilated stomach may resume its normal proportions after the causative obstruction has been removed. This result takes place the more rapidly the shorter the duration of the dilatation. If in the resection a portion of the pylorus is permitted to remain this portion assumes the function of the whole, so that the stomach is as securely shut off from the intestine as it was before the operation. The motor function of the stomach also returns to the normal. Resorption and secretion take place with their previous activity, except in cases in which the resection was undertaken for carcinoma.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JUNE 2, 1894.

THE THIRD TRIENNIAL CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

THIS issue of THE NEWS is given up almost exclusively to the proceedings of the Third Triennial Congress of American Physicians and Surgeons, held at Washington, D. C., from May 29th to June 1st. During the short period of its existence this body has become one of the most important (from a scientific point of view *the* most important) in this country. Made up, as it is, of national societies representing all departments of medicine and of the highest grade of membership, the work of the Congress and of its constituent elements stands for what is best in scientific medicine in this country, and this work will compare favorably with that of any other body in any part of the world. The arrangements for this Congress and for future Congresses differ somewhat from those of the first two meetings. Instead of having the general sessions entirely independent and apart from the meetings of the various constituent bodies, it has been decided to assign three afternoons and one evening in sessions of an hour and a half each to seven of the fourteen participating organizations, and each society selected prepares its own program and selects its own speakers. The selection is made alphabetically, and the general sessions of the meeting just ended were in the hands of the following societies: Anatomists, Climatologists, Dermatologists, Genito-urinary Surgeons, Gynecologists, Laryngologists, Neurologists. The remaining seven societies are in like manner to prepare programs for the Fourth Congress. As far as the reports thus far received indicate, and judging from the arrangements made and programs prepared, the work of the Congress will amply sustain the high standard which it has established.

As usual, THE NEWS has taken special pains to give the fullest and most trustworthy reports of the Congress, made by its special staff of reporters. It is besides a source of gratification that THE NEWS has been chosen as the medium of a wider communication of a number of valuable papers to the general profession, synchronously with their presentation to the Congress. Others are to follow as soon as the exigencies of our space will permit.

SOCIETY PROCEEDINGS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Third Triennial Meeting, held at Washington, D. C., May 29, 30, and 31, and June 1, 1894.

[Specially reported for THE MEDICAL NEWS.]

FIRST DAY—MAY 29TH.

THE Congress was opened with a brief address by Dr. LANDON CARTER GRAY, of New York, Chairman of the Executive Committee. Dr. Gray then introduced the President of the Congress, DR. ALFRED L. LOOMIS, of New York, who in a few remarks thanked the Congress for the honor that it had conferred upon him by electing him to the Presidency, but as the time allotted to the session was so short, he refrained from making any extensive address.

This session was under the direction of the Association of American Anatomists, and the subject selected for consideration was "Morphology as a Factor in the Study of Disease."

The discussion was opened by DR. HARRISON ALLEN, of Philadelphia, whose paper appears in the present issue of THE NEWS. (See page 589.)

DR. THOMAS DWIGHT, of Boston, said that Dr. Allen defines morphology as anatomy writ large. The underlying idea of his paper is to plead for a longer, broader, deeper course in anatomy. The tendinous heart-strings of every anatomist will vibrate in sympathy, producing a chorus of musical murmurs. Perchance, in some, one of the factors will be the moderator band of the ruminant, which has left its normal place near the apex of the human heart to cross near the middle of the right ventricle. The expert auscultator can recognize this cord. It is good for his patient that he should know from anatomy that such a band may be present and that its sound is no sign of even functional disturbance. The ophthalmologist is none the worse that embryology

teaches him the whereabouts of the hyaloid artery, which may persist throughout life. Anomalies, therefore, as well as slighter variations are of practical importance. The surgeon needs to know of the fibrous or muscular band which may cross the axillary artery, that the brachial artery may divide high up the arm (very rarely in the lower third), and that the diverging artery, be it radial or ulnar, almost always runs superficially. A third trochanter, which seems much larger than it is when felt through the soft parts, must not be mistaken for an exostosis, nor a deltoid tubercle of the clavicle for an old fracture.

Before removing a kidney the surgeon will do well to be sure that it is not the only one. I have myself within a few months seen a case of complete absence of one kidney, the other being of about the usual size and in its proper place.

But it is not necessary to turn to anomalies to support the need of a deeper knowledge of anatomy for the practitioner. The statics and mechanics of the skeleton and the action of the muscles are becoming daily more important to the orthopedic surgeon and to the neurologist.

The anatomy of childhood is still almost in its infancy. Though not quite helpless, it has not yet made its way into text-books, but hides itself bashfully in scattered papers and monographs. A more thorough knowledge would be of great value to the practitioner in children's diseases. How interesting and how practical, in view of infant-feeding, is the story of the rate of growth of the stomach in the first months of life, and how few know it.

My views of the esteem in which anatomy is held are far less pessimistic than Dr. Allen's. It is but too true that we have many in high places absolutely ignorant themselves of anatomy, who look on its progress with a jealous aversion; but they are mostly on the wrong side of fifty and they belong to a school of thought that is doomed. On the other hand, I look with confidence to the rising lights. I see in the better class of our young practitioners a great respect for anatomy. They have a clearer vision of its sphere. One of the most gratifying incidents of my professional life is the constantly increasing number of those who come to me for information on anatomic problems or for the means of solving them.

Surely, from what I have said I shall not be suspected of indifference to the cause if I do not quite agree with Dr. Allen as to the remedy. He would have students thoroughly instructed in the highest anatomy before graduation. I reply that there is no time. As a practitioner myself of twenty-five years' standing I am appalled at the amount of knowledge of all kinds which is now necessary for the simplest practice of the profession by anyone who would not fall behind his colleagues. I heartily agree with Huxley's saying that any one who adds one tittle that is unnecessary to medical education is guilty of a very grave offence. I would leave the matter to the good judgment and tact of the professor of anatomy. While his teaching should be eminently practical in the ordinary sense of the word, I would have him incidentally point out the explanations of structures from comparative anatomy and embryology, and still more insist upon the application of morphology to disease. But I would have these things pointed out rather than pursued. I would have him show the possibilities of anatomy, which, unfortunately, are impossibilities in the regular course. Thus he will enlarge the student's horizon. It is not necessary to have followed a certain line of research to know that it gives promise of great results. The mind of a student so trained will be in a very different state from that of his comrade who has been crammed with facts from a compendium. Advanced students and graduates are those to whom the highest anatomy will be most profitable, and the more so that they can see for themselves its value, which the beginner must take on trust.

DR. FRANK BAKER, of Georgetown, D. C., said that the study of the human organism, of its structure, its functions, its diseases, of the effects that various agents have upon it, therapeutically and otherwise, must necessarily be a study of life and its manifestations; it is a biologic science. The study of morphology as a preliminary to the study of disease is a necessity. The great impulse given to the study of anatomy by Vesalius and his followers in the sixteenth century has not yet exhausted itself. The error in the Vesalian anatomy, which has prevailed up to the present time, consists in considering the body as an essentially fixed organism. From this view arises the notion that anatomy is a fixed science, but even a cursory view of the history of the science shows this assumption to be baseless. To the modern biologist the human body is by no means fixed and invariable.

The human body has been studied far more than any other organic form. There is no lack of knowledge of details, but for the ordinary student these details are not classified and arranged as the results and sequences of morphologic laws. It may even be said that inflammation itself cannot be properly understood without a knowledge of the morphologic character of the tissues involved. The whole subject of tumors has, since the investigations of Virchow, been studied from a morphologic standpoint, and it has become evident that in order to understand their causes and their history, we must know more about the laws that control cell-formation and the growth of tissues.

The human body is built up of cells, and the gross variations in form must depend upon these minute cell-activities. These variations may be of all grades. The morphologist studies them as indicating slow modifications of the form of the human body. It is well known that the body of man is slowly changing, that adaptations are going on within it, slowly fitting it more and more to its environment. In this process there are constantly left structures that have ceased to be of value, and may properly be termed vestigial. Among such may be noted the vermiform appendix, Meckel's diverticulum, the thyroglossal duct, hypospadias, and the persistence of the choroidal fissure of the eye, producing coloboma.

The erect position of the human body was gradually acquired, and in many respects the body has not yet become perfectly adapted to this posture. The shape of the pelvis has necessarily become modified that it may support the weight of the viscera, yet with all this that weight is often a cause of hernia. As a result of these changes the pelvis of civilized woman is less adapted for easy parturition than that of her savage

grandmother of the stone age. Many of the abdominal viscera show signs of maladaptation. The cecum and ascending colon are not favorably situated. The liver, instead of being supported from the spine, is slung from the diaphragm, which, to support the weight, must receive strong connections from the pericardium and the fascia that supports the heart. This arrangement must interfere with the growth and expansion of the lungs. The heart itself works at great mechanical disadvantage. The valves of the veins are not adapted to the erect posture.

As the science progresses there is no doubt that many important generalizations will be made. Some already seem almost ready for statement. Among these is to be mentioned what may be called the law of stability. It is this, that the stability of a structure varies directly according to the time it has been functionally active in the ascending series of animal life. The structures most readily attacked by disease are those at either end of the scale of activity. The originally elementary tissues, epithelium and connective tissue, are the most stable, their derivations, nerve-tissue, muscle-tissue, glandular tissue, are the least stable.

Morphology is throwing light upon a vast variety of subjects connected with the domain of medicine, not only upon the causes of disease, but upon the action of cells, the problems of therapeutics, the very springs of life that underlie heredity, development, training, and education. It is a growing science, one that is destined to a great future, promising much for the elucidation of the highest problems of medicine.

DR. BURT G. WILDER, of Ithaca, N. Y., who regretted that he had been unable to prepare a formal paper, expressed his agreement with the statement of Dr. Baker that the human body is not to be regarded as a completed structure. It is by no means completed. The physician should consider very seriously whether it is not his duty to improve the human body in the direction in which it has been moving, namely by the obliteration of that most frequent source of trouble, the appendix of the intestine. It is the unanimous consensus of opinion among surgeons that the removal of the appendix, if not gangrenous, presents no great likelihood of mortality. It is now four years since Dr. Wilder proposed that we should not only practise vaccination, but also de-appendicize the child at a period of life when time was not very valuable, and thus improve his chances of existence.

Dr. Dwight has alluded to the impossibility of putting more in the curriculum of the schools, and with this Dr. Wilder thoroughly agreed. He held that there should be more morphology taught in the preliminary school-education, and he predicted that it would not be many years before most children, prior to leaving the ordinary college, will know as much anatomy, physiology, and morphology, in the broad sense, as is now possible to be obtained by the average physician.

(Continued on page 613.)

Cholera in Russian Poland.—It is reported by cable that cholera is raging in the districts of Plock, Radom, and Petrokoff, in Russian Poland. As a precaution against the importation of cholera an order has been issued to compel all Russians entering Prussia to come *via* Illowo, where the strictest sanitary regulations are enforced.

AMERICAN SURGICAL ASSOCIATION.

Fifteenth Annual Meeting, held at Washington, D. C., May 29, 30, and 31, and June 1, 1894.

FIRST DAY—MAY 29TH.

THE Association was called to order by the President, DR. J. EWING MEARS, of Philadelphia, who delivered the President's Address.

In this he considered matters of interest to the Fellows of the Association referring to the previous work of the Association, and the methods of best carrying on the work of the society.

The Secretary, DR. J. R. WEIST, presented for the President to the Association a gavel, which had been made from a portion of the office-chair of Professor S. D. Gross, the founder of the Association. This was accepted, with the thanks of the Association.

The first paper was one entitled "The Surgical Treatment of Empyema," by Dr. JOHN ASHHURST, JR., of Philadelphia.

The following summary was presented:

1. No operation is justifiable unless the presence of pus is certain; unless thorough treatment by medicinal agents, blisters, etc., has failed; or unless the symptoms, dyspnea, etc., are so urgent as to demand immediate relief.

2. The first operation should consist of simple aspiration, with antiseptic precautions.

3. When the fluid has partially reaccumulated, as it almost certainly will do, if purulent, incision and drainage should be practised.

4. Drainage is best effected by making two openings, one at the lowest point, and carrying a large drainage-tube through the cavity from one opening to the other.

5. Drainage should be supplemented by washing out the cavity with mild antiseptic fluids; when the lung has expanded and the discharge has nearly ceased, the tube should be shortened, the upper opening being allowed to heal, and the tube then being gradually withdrawn through the lower opening.

6. When the lung is so bound down by adhesions that it cannot expand, resection of two or more ribs should be practised (Estlander's operation, so called) in order to allow collapse of the chest-wall and to promote healing by bringing the costal and visceral layers of the pleura into contact.

7. The more extensive operations of Schede and Tillmans, while probably justifiable in exceptional cases, are not to be recommended for general employment.

DR. CHARLES B. NANCREDE, of Ann Arbor, did not see the advisability, in cases in which pus was shown to be present by aspiration, of limiting the treatment to this operation. It is held that in a few cases this will be followed by cure, but he had never seen such a case. When pus is present he preferred to immediately provide for its permanent evacuation. He called attention to the danger of the drainage-tube becoming occluded by the pressure of the ribs, and he believed that in empyema of long standing some form of excision of the ribs should be employed.

In irrigation, if the pus is not too much contaminated, sterilized water is sufficient, but if necessary an efficient antiseptic solution may be used, and if there is fear of

absorption, the chest can afterward be flushed with sterilized water.

If provision is made for the free escape of pus, he had seen no necessity for the removal of large segments of ribs.

DR. T. F. PREWITT, of St. Louis, thought that the rule that no operation is justifiable unless the presence of pus is certain needed modification. As a rule, we can determine only that fluid is present, and cannot be sure whether it is or is not pus. He thought it advisable to aspirate even when serous fluid is present. If thorough antisepsis is maintained this can do no harm. He had never seen it result in the formation of pus, and this method greatly shortens the duration of the disease. In empyema in children he had seen several recoveries follow aspiration, but never in adults. In children the pus does not seem to possess that thick, clotting character so common in adults, and which requires a free opening. In empyema in adults he invariably resects a rib, sometimes two ribs.

Attention was called to the great necessity of caution in the administration of anesthetics in this affection.

As to washing out the cavity, he always does that, using a weak solution of mercuric chlorid.

DR. DEFOREST WILLARD, of Philadelphia, said that the whole question was one of thorough drainage of an abscess-cavity. Whether or not the ribs should be excised is to be determined by the question of securing free drainage. In children the ribs are so close together that removal of a portion of a rib is usually required.

In the early treatment he favored the use of a clean aspirator, rather than to compel Nature to cause the absorption of a large quantity of fluid. Such an operation does no harm, and saves several weeks in time.

He believed that washing, as a routine measure, did more harm than good. If the pus is decomposing, freer drainage is needed. If strong antiseptic solutions are employed there is danger of renewed inflammation.

DR. JOHN E. OWENS, of Chicago, called attention to the necessity, in evacuating pus from the chest or washing out the pleural cavity, of changing the position of the patient during the process, in order that all the pus may be removed.

DR. CHRISTIAN FENGER, of Chicago, held that there are certain cases in which Schede's operation is required, viz., after milder measures, such as incision, drainage, and Estlander's operation have been fruitlessly employed. He reported a successful case, in which this operation was performed after other measures had been unsuccessfully resorted to during seven years.

DR. ROSWELL PARK, of Buffalo, thought that the treatment of empyema should be based upon the same principles as are applicable to other abscesses. In acute cases presenting streptococcus and staphylococcus forms of suppuration, it may be sufficient in a few instances to simply aspirate. A large proportion of cases of empyema, however, are essentially cold abscesses, tuberculous abscesses. In these free incision, free drainage, and excision of a rib are required. In certain cases he had resorted to scraping with the sharp spoon, and in some he had cauterized the diseased surface with a 50 per cent. solution of zinc chlorid. He reported several cases in which death would have occurred had it not been for some such radical operation.

DR. W. H. CARMALT, of New Haven, asked how far it was justifiable to go in the way of resection of ribs in these cases. He reported a recent case in which he had removed portions of five ribs, the longest piece exsected being four and a half inches. In such cases it is necessary to remove enough of the chest-wall to permit of obliteration of the cavity. He had also used the sharp spoon in order to secure a fresh surface.

DR. M. H. RICHARDSON, of Boston, said that the questions that arose in the treatment of empyema were different from those in ordinary abscess, for in the former condition we have an abscess with rigid walls. With regard to drainage, he had used double tubes provided with valves, but considered them inapplicable, and liable to cause increased trouble, for when air or pus is forced out through the tubes by coughing, a vacuum is established, and the valve is held against the chest-wall, preventing drainage. He believed that Estlander's operation is applicable only to certain forms of cavity, and that there are certain cases in which the cavity involves a large portion of the thorax, and the operation of Schede is the only one applicable after a failure of Estlander's operation.

DR. STEPHEN F. WEEKS, of Portland, Me., thought that the rule of Dr. Ashhurst, to aspirate, especially in children, was a good one. Sometimes aspiration alone will result in cure. The tuberculous cavity is to be treated differently than the cavity in which tuberculosis does not exist. Thorough drainage is sufficient in many cases. He called especial attention to drainage by packing the cavity with sterilized gauze. In twenty-four hours he removes the gauze and washes out the cavity.

DR. L. MCLANE TIFFANY, of Baltimore, maintained that the treatment of acute empyema is of more importance than that of the chronic form, as it is the more common. The most important point, as bearing upon treatment and prognosis, is the character of the pus and its bacterial cause. The reason that the empyema of children often yields to aspiration is that in many of these cases the pus is simply a pure culture of the pneumonia-coccus. In the adult we rarely have the pneumonia-coccus form of suppuration. Here we have a mixed infection. If the empyema is of the amebic form the patient dies. If empyema is due to the streptococcus, the odor is offensive and the cavity needs to be carefully washed out. If empyema is due to the staphylococcus, washing out is not required. When there is time, Dr. Tiffany prefers to withdraw some of the fluid with the hypodermatic syringe and have it submitted to bacteriologic examination.

While he uses ether in general work, in these cases he prefers the use of a few whiffs of chloroform, which appears here to have a peculiarly happy effect. Only a very small quantity is employed.

The employment of respiratory gymnastics is of much benefit in favoring expansion of the contracted lung.

DR. JAMES MCFADDEN GASTON, of Atlanta, referred to the natural tendency for the empyemic cavity to open spontaneously in the anterior part of the chest. He reported two cases in which this spontaneous opening had occurred and was followed by recovery.

DR. W. W. KEEN, of Philadelphia, read a paper entitled "Amputation of the Entire Upper Extremity (Including the Scapula and Clavicle), and of the Arm at

the Shoulder-joint; with Especial Reference to Methods of Controlling Hemorrhage; with the Report of One Case of the Former and Four of the Latter."

He considered, first, those amputations that allow of simple disarticulation at the shoulder joint itself; second, those cases in which the axilla is invaded, yet only to such an extent as to allow of its being thoroughly cleaned out, followed by amputation at the shoulder; and thirdly, those in which removal of the entire upper extremity, including the scapula and clavicle, is required.

Simple amputation at the shoulder-joint. Here the control of hemorrhage is the key to the situation. The methods for the prevention of hemorrhage are, first, those applicable to the subclavian vessels, and, secondly, those applicable to the axillary. Most text-books recommend compression of the subclavian by the thumb, or a well-padded key. Dr. Allis has modified this method by substituting a stick, eighteen inches in length, with a pad of sterilized gauze at its extremity. This obviates the danger of slipping, and can be applied without fatigue on the part of the operator. Dr. Keen has suggested compression by means of a solid pad held in position by an Esmarch bandage passing over the perineum, but on trial in the case of a child this had proved unsatisfactory. A third plan consists in ligation of the subclavian artery. This is objectionable on account of the prolongation of the operation; also on account of the necessity of resecting the clavicle in order to ligate the vein, and if the vein is not ligated there is danger of the entrance of air.

Axillary methods. 1. Those in use prior to the introduction of Esmarch's tubing. 2. Different methods of using Esmarch's tubing. Under the first head we have: (*a*) compression of the inferior flap by the fingers, which seize the vessels before they are cut; (*b*) Harvey's method, by compression of the vessels by means of a padded ruler thrust into the axilla; (*c*) ligation or seizure of the vessels with hemostatic forceps before they are cut; (*d*) Gross' compressor, but practically this is never used; (*e*) Furneaux Jordan's method, by making a circular amputation at the surgical neck, securing the vessels as in a hip-joint amputation, the bloodvessels having been compressed by an Esmarch band or other method, followed by disarticulation of the upper end of the humerus.

Under the second head are: (*a*) After making the antero-external flap, a stout pin is passed through the postero-internal flap, between the vessels and the bone, and elastic tubing is wound over the ends of the pin. In this method there is danger of the vessels retracting above the constricting band; (*b*) Esmarch's method, in which an elastic tube is placed in the axilla and drawn tightly over the shoulder, where it is grasped by the hand of an assistant. This is open to the danger of slipping of the bandage after disarticulation of the bone; (*c*) Morre's method. In this method the tubing is applied as in the Esmarch method, but is held in place by a bandage passing around the chest and under the tubing in front and behind; (*d*) Wyeth's method by pins and elastic tubing. In this method the operation is performed as follows: The arm is held at a right angle to the body. The sharp-pointed cylindrical pins, eleven inches long and one-fourth of an inch in diameter, are used. The anterior pin is introduced through the middle of the anterior axillary fold at a point a little nearer the body than what may be called the center of the fold transversely. The point of emergence is of much greater importance than the point of insertion; this should be one inch within the tip of the acromion. The second pin is introduced at a corresponding point, through the posterior axillary fold, emerging an inch within the tip of the acromion. The point of emergence is of importance, for if the pin emerges near or at the tip of the acromion, the moment the head of the humerus is removed the tubing is likely to slip downward and compress the two flaps against each other, thus hiding the cavity and permitting the vessels to retract. The pins being in position, a piece of rubber tubing is wound around the axilla and shoulder on the hither side of the pins. The disarticulation having been effected, the main vessels and all visible vessels are tied and the tubing removed the spurting vessels being grasped with hemostatic forceps. Dr. Keen considers this the most satisfactory method of controlling hemorrhage, and he felt confident that anyone who adopted it would abandon all other methods in its favor, except possibly in emergency cases.

Amputation at the shoulder-joint in cases in which the axilla is invaded so high that Wyeth's pins cannot be used. In 1812, Delpech proposed to make "an oblique incision extending from the external third of the clavicle to an inch above the inferior border of the great pectoral muscle. We thus discover and can cut near to its origin on the coracoid process of the scapula, the lesser pectoral. The index finger is carried through the cellular tissue, along the serratus magnus, then the subscapular, and it is used as a hook in order to draw outward the mass of vessels and nerves. The artery is found in the anterior portion of this mass." The artery and vein are then ligated. The advantages of this method are that it gives wide access to the axilla, that we can determine with ease how far and how great is the invasion of the axilla, and, if thought advisable, the operation can be abandoned at this point; or if it is decided to proceed with the operation, the incision already made serves as the inner part of the deltoid incision. Dr. Keen has employed this method with great satisfaction in a case in which a sarcoma of great size had invaded the axilla nearly to the clavicle.

Control of hemorrhage in cases in which it is necessary to remove the arm, the scapula and the clavicle. The methods that have been employed in these cases have been (1) simple compression of the subclavian artery; (2) compression of the artery after resection of the clavicle; (3) ligation of the subclavian prior to beginning the amputation; (4) resection of the middle half of the clavicle and ligation of the subclavian; (5) Wyeth first tied the artery, then formed his flaps, and, when the arm, clavicle, and scapula were connected with the trunk by only the veins and nerves, secured the veins and cut the nerves; (6) the artery and vein have both been tied after resection of the middle portion of the clavicle. The last seems to be by far the preferable method. Its advantages are that it prevents hemorrhage from division of the axillary and its branches, it diminishes the amount of blood lost during the operation, it prevents the entrance of air into the veins, it permits of a large opening of the space between the upper extremity and

the chest, and it enables us to divide the posterior attachments of the upper extremity, where the arterial circulation is still going on, at the end of the operation.

As a rule, recovery from this operation follows in from two to three weeks. The mortality in the more recent operations has been extremely low, one in fourteen. Again, by this method we can often amputate wide of the disease, by reason of the relative smallness of the flaps required. In view of these facts it was urged that in all cases of malignant disease of the upper extremity of the humerus, or even of the lower extremity when it is already diffused, we should not content ourselves with mere amputation at the shoulder-joint, but should at the same time extirpate the scapula and the clavicle.

Dr. Keen reported the case of a woman, aged twenty years, in which the arm, scapula, and clavicle were removed for myeloid sarcoma. The patient recovered, and was perfectly well six months after the operation.

DR. ROSWELL PARK, of Buffalo, said that he had in two cases successfully removed the entire upper extremity, in one for railroad injury, and in the other for extensive epitheliomatous ulcer. In the first case the clavicle was already broken, and the subclavian vessels were secured at the point of fracture. In the second case the clavicle was divided and the vessels tied.

DR. CHARLES B. PORTER, of Boston, in illustration of the rapidity with which malignant disease may advance, reported the case of a patient with sarcoma of the radius, whose arm was amputated above the elbow. The disease soon recurred, an amputation at the shoulder-joint was performed, and again the disease recurred, but so high up that no operation could be undertaken. The whole history of the case extended over only one year after the first operation. A case was also reported in which the arm had been torn off in a railroad accident and the scapula and outer portion of the clavicle had been subsequently removed by an osteoplastic resection, and the wound was closed with skin-grafts. Three months later a hard plate of bone had formed very similar in shape to the scapula.

DR. JOHN ASHHURST, JR., of Philadelphia, said that he had once used the Wyeth pins satisfactorily in an amputation at the shoulder-joint. Another device to which he had resorted in several cases was to make the incision in the lower flap from without inward and secure the vessels in the wound.

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ASSOCIATION OF AMERICAN PHYSICIANS.

Ninth Annual Meeting, held at Washington, D. C., May 29, 30, 31, and June 1, 1894.

FIRST DAY—MAY 29TH.

DR. REGINALD H. FITZ, of Boston, delivered the President's Address, taking for his subject the "Rise and Fall of the Licensed Physician in Massachusetts, 1781–1860." He pointed out that the first legislation concerning the regulation of medical practice in Massachusetts was enacted at Boston on May 3, 1649, than which there was none more stringent until the years immediately preceding the war of the Revolution.

In 1760 the city of New York had found it necessary to regulate the practice of medicine within its limits on account of the abundance of quacks preying upon the community. Five years later the Medical School of the University of Pennsylvania was established, and in the following year the New Jersey Medical Society was founded. In still another year the Medical School of Columbia College began its career; and in 1771 the colony of New Jersey passed its act regulating the practice of medicine, to be followed in 1774 by the abortive attempt in Connecticut.

The Massachusetts Medical Society was organized in 1781 with the express purpose of making a just discrimination between duly educated and properly qualified practitioners and those who ignorantly and wickedly administer medicine. For many years its Fellows acted most judiciously in endeavoring to include within their number every educated and moral practitioner in the State. They accomplished this largely by the force of example, association, and united encouragement. The State made them the sole source of licenses to practise. The progress of Thomsonianism left their responsibilities essentially intact. The advent of homeopathy found them weak where they should have been strong, short-sighted where they should have been far-seeing. The leaders were obliged to follow, and the reproval of the Censors prevailed against the wisdom of the Councillors.

Homeopathic diplomas and homeopathic certificates are now accepted by the Society. Homeopathic physicians have been found fitted to practise by the great public, which decides this question for all. Ten years of increasing intolerance destroyed seventy years of enthusiastic effort, devoted labor, tactful management, and wise council in the public interest. The State revoked the control of medical practice, and the people have been the sufferers. The history of Massachusetts in this respect is the history of the country. She was one of the last of the States to lay down the control, and she will be one of the last to resume it.

DR. BEVERLEY ROBINSON, of New York, read a paper on the "Treatment of Certain Symptoms of Croupous Pneumonia, particularly in Adults." He laid special stress upon the management of two symptoms of the first stage of the disease, namely, pyrexia and pulmonary congestion. He does not use the modern antipyretics, except in special cases. Phenacetin he regards as the best of these, for the reason that in addition to its antipyretic action it also induces sleep. The spirit of mindererus, potassium citrate, and magnesium sulphate he uses largely. Quinin, in doses of from 2 to 4 grains every three hours, is antipyretic. Cold sponging and cool baths are not especially efficacious; if the temperature of the patient is over 104°, and the pulse is rapid and delirium is present, a tub-bath may be advantageously employed. He has seen bad results, however, following immersion in a tub-bath; sponging, with friction, is preferable. The advantage of the bed-bath is the avoidance of shock and exposure, and the ease with which it can be given. The bath should last from fifteen to thirty minutes, and is to be repeated whenever the temperature is over 103°; prompt relief follows, the temperature falling to 100°

Aconite and aconitin act by diminishing the heart's action through its motor ganglia. The heart is slowed in a very alarming manner, and may be arrested in

diastole; gr. $\frac{1}{1\overline{0}\overline{0}}$ of aconitin may produce serious results; hence he does not believe in its use. The administration of small and repeated doses of antimony oxysulphuret, gr. $\frac{1}{12}$ every hour or two hours, is much superior to the use of aconite. It renders the sputum more fluid, and therefore easier of expectoration, and in this way diminishes the dyspnea. It is also well borne by the aged and by children. It may be used in both the first and second stages of the disease. Nitroglycerin, by the mouth, or better, hypodermatically, in doses of gr. $\frac{1}{\overline{6}\overline{0}}$ or $\frac{1}{2\overline{5}}$, is an excellent remedy in this disease. It strengthens the weak pulse, removes the cyanosis, and relieves the dyspnea. Inhalations of oxygen in pneumonia usually give relief, but in some instances the dyspnea is increased by its use. Especially in cases of general edema have unfavorable results been noted. In failure of the right heart inhalations are, according to some authorities, of marked service, though the subject is still open for discussion. The abundant use of cold spring-water, Apollinaris, and other table-waters is of service in promoting diuresis and diaphoresis, and in this way reducing the abnormal temperature of the body. Alcohol is beneficial in many cases, not only on account of its nutritive value, but also because it aids the respiratory function. It also gives nerve-force, controlling the adynamia and nervousness. There are only two contra-indications to its employment, namely, when the patient is plethoric, and when there is hepatic engorgement and gastric catarrh. In these cases, small and repeated doses of calomel will act in the most beneficial manner. Digitalis or digitalin in small doses may be given to control an irregular heart; otherwise either is not to be used, on account of inducing vascular contraction. Strychnin by the mouth or hypodermatically, from gr. $\frac{1}{3\overline{0}}$ to $\frac{1}{1\overline{6}}$, is a very useful drug; at times, however, it may produce nervous irritability. Nitroglycerin acts by bleeding from the veins into the arteries, in this way taking the place of the old method of bleeding, which was often followed by excellent temporary results. In cases of threatened heart-clot, venesection, followed injections of salt-solution, may yield excellent results. Black coffee is of service when other remedies cannot be borne by the stomach, and may tide the patient over. Caffein does not replace the use of coffee for the reason that it is merely an alkaloid, and does not possess the nutritive value of the coffee.

DR. PEABODY, of New York, remarked that pain, with insomnia and cough, is an urgent symptom of croupous pneumonia, that could be controlled by the use of small doses of morphin hypodermatically, as gr. $\frac{1}{6}$, repeated once or twice during the night. He objects to the too frequent use of water in reducing the temperature. He has very rarely found heart-clot as a pathologic feature in this disease, and believes that many of the so-called cases of ante-mortem clot are in fact but post-mortem clots.

DR. J. C. WILSON, of Philadelphia, believed that, owing to the varied clinical manifestations of pneumonia, the treatment must be largely expectant and symptomatic. Cold baths have not been satisfactory in his hands. Local applications of cold to the chest have been advantageous in many cases. In sthenic cases, with delirium and other nervous manifestations, cold affusions of from one-half to one gallon of cold water, poured over the head and shoulders, will often act as the turning-point in the disease. Venesection proves beneficial in many cases of pneumonia by attenuating the toxemia and removing from the blood a quantity of effete material. He indorses the use of small amounts of opium, as, *e. g.*, gr. ij or iij of Dover's powder, from every two to four hours.

In concluding the discussion DR. ROBINSON remarked that the purpose of his paper had been to oppose the treatment of the disease by the use of the so-called "Trinity" pill or its modifications, and also to direct attention to the fact that drugs are often used without a full knowledge of their constitution or why they are used.

DR. SAMUEL A. FISK, of Denver, Colorado, presented a paper entitled "A Treatment of Typhoid Fever." He stated that the mortality of typhoid fever in Denver was much smaller than in other large cities. His treatment, he claimed, was attended with a shorter duration of the disease, and with marked amelioration in the symptoms, as proved by the comparative chart which he offered for examination. He believed that the average case of typhoid fever in Denver was milder than the average case in the East. During his treatment the patient had no tympanites, no dry tongue, no marked delirium, and but slight nervous manifestations. The treatment consists in absolute rest. If the patient is seen early in the disease one dose of calomel, gr. v, is given at night, followed in the morning by a saline. The diet is restricted to milk, of which a tumblerful is given every three hours. If the patient cannot take simple milk the fluid is peptonized, or buttermilk is given. He administers a turpentine mixture composed as follows: Oil of turpentine, ƒ℥ij; castor-oil, ƒ℥ij; bismuth subnitrate, ℥iv; and mucilage of acacia, a sufficient quantity. With this he maintains a moist tongue and stimulates the bowels. For the restlessness he gives a Dover's powder, gr. v, or McMunn's elixir of opium, ♏x. Water or ice is given freely. Antipyretics, including quinin, are absolutely interdicted. Whiskey is always given. Strophanthus is preferred as a heart-stimulant. Brand's cold baths are never used, and tepid sponging is not often employed.

DR. C. F. FOLSOM, of Boston, thought that the number of cases reported by Dr. Fisk was too small to generalize from. He believed that the cases included in the series were mild ones, and doubted whether the medicine had much influence upon the result.

DR. WILLIAM OSLER also thought that the treatment had had no influence upon the disease, and that the patients, evidently suffering from but a slight attack of the disease, needed no medicine, but would have recovered on the cold-water treatment and good nursing.

DR. C. F. FOLSOM, of Boston, reported "Six Cases of Traumatic Headache," all relieved by the operation of trephining, the dura, however, not being opened. The patients were all affected with grave neuralgic pains centering in a lesion of the scalp, and associated with alterations in disposition, and in some instances with epileptic seizures.

DR. FREDERICK P. HENRY, of Philadelphia, made a "Clinical Report of Two Typical Cases of Raynaud's Disease." In one, hemoglobinuria was present; and in the second, scleroderma. He believes that neither endar-

teritis obliterans nor peripheral neuritis should be regarded as an etiologic factor in the production of the disease. The theory of arteriospasm is most probably correct, and especially does he believe this, as the disease is most common in women and girls, in whom vascular spasm is most common. The hemoglobinuria is due probably to the excretion by the kidneys of hemoglobin that has exuded in the asphyxiated parts. Hemoglobinemia often exists without the coëxistence of hemoglobinuria. The relationship between Raynaud's disease and chilblains has recently been studied, and the query has been raised whether the two are not different stages of a single necropathic dyscrasia.

DR. HAROLD C. ERNST, of Boston, read a paper entitled "Dr. S. C. Martin's Researches on the Bacteria of Vaccinia." He stated that the late Dr. Martin had, by the use of a simple solution of fuchsin as a staining-reagent, discovered in the serum of cowpox a coccus and a bacterium. These two forms he demonstrated to be but different stages in the development of the same germ. Two inoculations made by Dr. Williams, of Roxbury, showed that from the pure culture in blood-serum, typical vaccinal effects were obtained in one case, and the successes with culture-inoculations in calves were numerous.

DR. W. H. WELCH, of Baltimore, spoke of the negative results obtained by others, and the extreme importance of the results. The work needs confirmation by others; the bacteriologic procedure is simple.

DR. ERNST, in closing, said that the closest investigation had failed to discover any fallacy in the methods of Dr. Martin.

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AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Eighth Annual Meeting, held at Washington, D. C., May 29, 30, 31, and June 1, 1894.

FIRST DAY—MAY 29TH.

THE PRESIDENT, DR. GEORGE CHISMORE, of San Francisco, read a paper on a "Modification of Bigelow's Operation for Stone in the Bladder, Designed to Meet Cases in which the Prostate is Enlarged." He called attention to the difference in the conditions present in the cases complicated by prostatic enlargement, to the intolerance of such patients to prolonged operative procedures and to trauma of the bladder.

In view of these facts, Dr. Chismore advocated, 1. Local anesthesia in preference to general anesthesia; 2. Short sittings; 3. Removal of any remaining fragments after the patient has fully recovered from the effects of the previous operation, and as soon as such fragments can be detected with the vesical sound. His procedure is as follows: The bladder is emptied, and from one to two ounces of a 4 per cent. solution of cocain hydrochlorate are injected. The lithotrite should be introduced as carefully as possible, and if spasm is present a short pause should be made rather than force the instrument in the face of this obstruction. As soon as the stone is found it should be crushed as rapidly as possible, but no prolonged search should be made for remaining fragments, as this adds very considerably to the gravity of the operation. Any evacuator may be employed, but Dr. Chismore employs a very simple one devised by himself.

Usually there are no after-symptoms, and the patient feels relieved at once. Occasionally there is some swelling of the deep urethra. If any fragments are left, the old symptoms gradually return. The operation of crushing these fragments may be done without anesthesia. Dr. Chismore still employs Bigelow's instrument in cases of hard calculi, as his instrument does not possess the strength requisite for crushing such stones. He maintained that in all cases of vesical calculus, complicated by enlargement of the prostate, the operation described offers every prospect of success; and that any stone which could be removed by perineal lithotomy may be crushed with less suffering and with greater success by this method.

DR. J. WILLIAM WHITE called attention to the gravity attending the use of a general anesthetic in many of these cases, the effect of which was to cause congestion or actual inflammation of the already crippled kidneys. When the integrity of the kidney is open to question, he thought the method described would occupy an important place.

DR. FRANCIS WATSON, of Boston, was inclined to consider the method a retrogression. The higher mortality of lithotrity over litholapaxy is due to the retention of the crushed fragments, and he was unable to see how the same injurious effect could fail to follow Dr. Chismore's method if some fragments were removed. He was, however, most favorably impressed with the statistics given, and theoretic objections must be withdrawn when such a good showing can be made. Dr. Watson advocated in the class of cases alluded to in the paper the method so strongly indorsed by Reginald Harrison, of performing perineal cystotomy and crushing and evacuating by this route.

DR. WILLIAM K. OTIS, of New York, favored supra-pubic lithotomy in cases of stone in the bladder, in the presence of considerable enlargement of the prostate gland, as this operation gives an opportunity to inspect the bladder and provides for drainage. In many cases, however, he thought Dr. Chismore's method would be very suitable.

DR. JOHN P. BRYSON was struck by the statement made by Dr. Chismore, that he was able to dilate the prostatic urethra, adding that whenever he had attempted this so much irritation followed that he has given it up entirely. He employs the cystoscope with advantage in gaining definite information of the exact intra-vesical conditions present. He thought that local anesthesia is coming more and more into use, and in many instances is exceedingly satisfactory. He agreed with Dr. White that general anesthetics are in many cases dangerous. He thought, with Dr. Watson, that most of the fatal cases are due to traumatism of the prostatic urethra. Dr. Bryson was not inclined to regard remaining fragments with apprehension in these cases, inasmuch as the pouched condition of the *bas fond*, the presence of residual urine and the tolerance already established, make the bladder much more tolerant than under the usual conditions.

DR. JAMES BELL concurred with Dr. Otis in preferring the supra-pubic operation for stone in prostatic cases. He was struck by the large amount of cocain employed

by Dr. Chismore, and asked if toxic effects had ever been noted.

DR. EDWARD MARTIN called attention to the recently established fact that chloroform is equally as irritating to the kidneys as ether, and that its use, therefore, in patients supposed to have diseased kidneys cannot be considered free from grave danger.

In concluding the discussion, DR. CHISMORE stated that he had employed cocain-anesthesia in all operations for stone in the bladder since June, 1889. In a few cases he has noted a little pallor, restlessness, or nervousness, and a mild degree of intoxication, but never any symptoms that caused anxiety. In some cases he has used as much as eight fluidounces, but usually less than half of this quantity is employed. He prefers to operate in a small bladder, and therefore injects only an ounce or an ounce and a half. Attention was called to the fact that in the class of cases under discussion the bladder is very tolerant, and that an uncrushed fragment would cause less disturbance than insistance on removing the last particle by a prolonged search. He is gradually employing smaller and smaller instruments. A condition not usually recognized was described as catheter-stricture. This is usually a stricture of large caliber occurring somewhere in the middle of the pendulous urethra in those who are obliged to use the catheter habitually. The presence of this anterior stricture is likely to cause a spasm of the deep urethra on passing the lithotrite.

DR. J. WILLIAM WHITE followed with a paper on "A Summary of the History and Present Position of the Operation of Castration for Hypertrophy of the Prostate," which will be found in full in another part of this issue of THE NEWS (see p. 601).

In the discussion that followed, DR. L. BOLTON BANGS congratulated Dr. White upon the suggestion advanced, and considered the subject a most important one. Considering the relative frequency of enlarged prostate, and the uncertainty and unsatisfactoriness of the means for its relief, any treatment that promises relief from the great distress so often present must be recognized by every one as a great stride forward.

DR. BRYSON, alluding to the reference by Dr. White of the possibility of section of the vasa deferentia accomplishing the same result as castration, inclined to a negative view. He referred to the fact that after double epididymitis, although the vasa deferentia were practically cut off, no change was to be noted in the condition of the prostate. An interesting case was reported in this connection of a man, aged sixty-one years, who, eleven years previously, had consulted him for enlargement of the prostate, with six ounces of residual urine, and complicated with acute cystitis due to instrumentation. The cystitis improved, but six months later the man returned with tuberculosis of the right testicle. This was removed. One year later he again appeared with a similar condition of the left testicle. With a view of sparing the patient a portion of the diseased gland, he made an attempt to curet away the diseased portion after a cutaneous incision, but the organ was so disorganized that it all came away. At the end of a year there was a distinct diminution in the frequency of urination, the improvement being most marked at night. There was at this time evidence of tuberculous disease of the prostate and seminal vesicles. Fifteen months later the man declared himself free from all urinary trouble.

DR. BELFIELD reported the case of a young man, aged twenty-three years, who had both testicles removed for tuberculosis, and in whom the prostate gland had shrunk to a mere nodule.

DR. WATSON reported two instances of abscess of one testicle, in which the prostate underwent marked diminution in size on the side corresponding to the affected testicle, and slight decrease on the opposite side.

DR. MARTIN stated that he had had the opportunity of examining the patient upon whom Dr. White had operated, both before the operation and within a few days. Before operation the gland was as large as half an orange. At the recent examination it was found to have shrunk to the normal size.

In closing, DR. WHITE said, among other statements of interest, that before operation the patient whose case he had reported was obliged to pass the catheter nine and one-half inches before urine began to flow; while three weeks after operation the urine was drawn on passing the catheter eight inches. It is stated as a fact by horsemen, that if the cord is left long at the time of castrating a stallion the animal has much more life (spirit) than if the cord is cut short. This may have an important bearing upon the operation under discussion, and would teach that success is more likely to follow the operation if the cords are cut short.

The next paper was one by DR. SAMUEL ALEXANDER, of New York City, entitled "A Suggestion as to the Best Method of Removing Fibro-adenomatous Growths from the Prostate." The operation which Dr. Alexander has found so satisfactory in two cases is that recommended by Dr. Belfield, consisting in a supra-pubic and a perineal cystotomy. It was found by pressing the base of the bladder toward the perineum with the fingers in the supra-pubic wound, that it was easy to enucleate the nodular prostatic outgrowths. His experience would lead him to employ the method in any subsequent case in which operative measures were indicated.

The discussion was participated in by DRS. WATSON, BELFIELD, WHITE, BRYSON, BELL, BANGS, and CHISMORE. Drs. Belfield and Chismore stated that they had given up the use of Petersen's bag; the first because he had seen serious symptoms follow its introduction, and the latter because he had found it entirely useless. Dr. Bryson considers the rectal bag of distinct value. He prefers to introduce it and distend it with eight fluidounces of water before injecting the bladder. In injecting the bladder he uses a hand-bulb, as he is thus enabled to appreciate approximately the amount of intra-vesical pressure. He called attention to the very free hemorrhage sometimes encountered, and stated that its source was from the mucous membrane and submucous tissue.

DR. FRANCIS S. WATSON, of Boston, followed with a "Report of Some Cases of Rupture of the Urethra." Five cases were alluded to. The first was that of a seaman who had sustained a traumatic rupture of the pendulous urethra, a blow crushing the penis against the symphysis pubis. On account of the swelling the urethra was occluded and the urine, separating the skin from the deeper structures, worked its way backward to the abdominal wall, where it collected, making an artifi-

cial bladder. Rupture finally occurred externally. The treatment consisted in draining the infiltrated tissue, in performing perineal section, and finally in opening the urethra at the point of rupture and suturing first the urethra, then the corpus spongiosum and lastly the skin. Recovery was complete.

In the four other cases the rupture occurred during coitus. In one of these there was violent hemorrhage, in another, none whatever. In one case, owing to extensive infiltration, the entire skin of the penis and scrotum sloughed. The exposed surfaces were covered by skin-grafts in the manner recommended by Thiersch, with a most satisfactory result.

DR. GARDNER W. ALLEN, of Boston, presented a brief paper entitled "Remarks Upon the Treatment of Cystitis." Of internal remedies he expressed a preference for the saline diuretics. Locally, boric-acid solution is probably the most useful. Very gratifying results frequently follow the use of silver nitrate and potassium permanganate. If one fails, the other will frequently succeed. He rarely employs the silver solution stronger than 1 per cent. The permanganate solution should not be stronger than from 1 : 5000 to 1 : 4000 at first, but the strength may gradually be increased to 1 : 2000. In a very severe case, in which it was thought necessary to perform perineal cystotomy for drainage, injections of iodoform-emulsion produced the most marked improvement. The injections were made three times weekly in the beginning of the treatment, and later twice a week.

DR. MARTIN, stated that he has found tri-kresol a better antiseptic and less irritating than the substances usually employed in inflammations of the deep urethra and bladder.

(Continued on p. 619.)

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

(Continued from p. 606.)

SECOND DAY—MAY 30TH.

THE first portion of the session was under the charge of the American Climatological Association, and the subject chosen for consideration was "Sewer Gas."

DR. ALEXANDER C. ABBOTT, of Philadelphia, opened the discussion by a paper entitled "Chemical, Physical, and Bacteriological Studies of Air over Decomposing Surfaces, with Especial Reference to their Application to the Air of Sewers."

He said that a study of the literature of the subject leaves the impression that many of the opinions advanced are not based on exact methods of investigation. We are now tolerably well acquainted with the nature of the air of sewers, and we know that, as ordinarily found, it does not differ conspicuously from the air that we are accustomed to breathe. Studies in bacteriology demonstrate the comparative poverty of sewer-gas in bacteria. The general impression is that the air of sewers is under an active pressure and tends to force its way into the houses, but numerous experiments with pressure-gauges show that this is not the case. The studies upon the chemic, bacteriologic, and physical side of the subject, together with observations on the health of those constantly exposed to the emanations of sewage, are not of a nature to warrant the opinion that sewer-air is the dangerous factor that some believe it to be. There does not seem to be a single conclusive demonstration that the air of sewers stands in causal relation to the diseases for which it has been held accountable.

Among the problems that Dr. Abbott has endeavored to solve experimentally in the laboratory is whether or not it is possible to demonstrate on animals that the gases arising from sewage or from other decomposing substances have any direct effect upon the health of the animal or its ability to resist infection. The method of experimentation was given in detail. The teaching that, because materials containing organisms capable of producing disease are constantly gaining access to the sewers, the air of these sewers must of necessity also contain such organisms is simply an opinion, not supported by observations that justify its acceptation as a fact. The more conservative of those who believe in a causal relation between the air of sewers and pathologic conditions are coming to the opinion that this air is not directly concerned in the production of disease, but that its continuous respiration in some way interferes with the normal vital resistance of the tissues, and thus renders them more susceptible to infections to which they may be exposed.

Dr. Abbott detailed his experiments on animals and concluded that if experiments upon animals are of any value in demonstrating the positive or negative effects of air saturated with the gaseous products of decomposition, it does not seem reasonable to suppose that the air of a sewer or cess-pool, in the enormous dilution in which it exists at the time that it reaches an individual in a house to which it has access, can be of much importance, either in the direct production of the diseased conditions or in influencing the vital powers of resistance of the individual who inhales it.

DR. A. JACOBI, of New York, read a paper on "The Effect of Sewer-gas in the Production of Disease," embracing the following conclusions: The atmosphere contains specific germs, both living and dead, which are frequently found in places that were infected with specific disease. In sewers fewer such germs have been found than in the air of houses and school-rooms. Moist surfaces, such as the contents of sewers and cess-pools and the walls of sewers, while emitting odors, do not give off specific germs, even in a moderate current of air. Splashing of the sewer-contents may separate some germs, and then the air of sewers may become temporarily infected, but the germs will sink to the bottom again. Choking the sewers, the introduction of hot factory-refuse, leaky house-drains, and the absence of traps may cause sewer-air to ascend or be forced back into houses; but this complication of circumstances must certainly be rare.

Whatever arises from the sewer under these circumstances is offensive and irritating. A number of ailments, such, perhaps, as sore-throat may originate from this cause, but no specific disease will be generated by it, except under the rarest of conditions, for specific germs are destroyed by the process of putrefaction in the sewers and the worse the odor the less is the danger, particularly from diphtheria. The causes of this disease are varied and the search for the origin in an individual case is often unsuccessful. Irritation of the throat and naso-pharynx is a frequent source of local catarrh. This

creates a resting-place for the germs of diphtheria, which are ubiquitous during an epidemic, and thus an opportunity for diphtheria is furnished. Of the specific germs, those of typhoid fever and dysentery appear to be the least subject to destruction by cess-pools and sewers. These diseases appear to be sometimes referable to direct exhalation from privies and cess-pools. Fewer cases, if any, are attributable to sewer-air. A simple outlet from the sewer would be dangerous to the general health because of the density of the odors (not germs) arising therefrom. Therefore, very thorough and multiple ventilation is required. The impossibility or great improbability of specific diseases arising from sewers opening into our houses, but protected by good drains and efficient traps, must, however, not lull citizens and authorities into indolence or carelessness; for the general health will suffer from the chemic exhalations and the vitality of cell-life, and the power of resistance will be undermined.

DR. BEVERLY ROBINSON, of New York, read a paper entitled "Sewer-gas as a Cause of Throat-disease, or the Effect of Bad Drainage on the Throat." Defective sewage may produce a sore-throat of a benign character, which affords a soil suitable for inoculation by the germ of diphtheria when present in the air. It is an admitted fact that the throat swarms with bacteria at all times, and possibly the bacillus of Löffler is occasionally among these; but these organisms are incapable of doing much harm if the individual is in good health. Through the depressing influence brought about by bad drainage, etc., they are capable of multiplying and increasing in virulence and finally causing infectious sore-throat. It is therefore clear how important it is to keep up an excellent condition of general health to avoid contracting disease of the throat. Proper disinfecting washes and gargles are also of value. While the connection between effluvia from sewers and drains and the condition of the throat cannot always be determined, yet in many cases it is clearly demonstrated. That many cases of tonsillitis are immediately caused by the air of sewers and fecal emanations scarcely admits of doubt. In some instances the cases of sore-throat have been confined to particular parts of houses, and when the bad sewage has been remedied they have ceased to recur. When cases of diphtheria, tonsillitis, or erythematous sore-throat occur in houses in which the plumbing is found to be defective, care should be taken not to ascribe these diseases necessarily to this cause. While throat-affections often occur where the drainage is bad, they may occur where the sewage is in perfect condition, or where there is no sewage at all.

The second part of the session was under the direction of the American Dermatological Association.

The subject for discussion was Leprosy.

The opening article was on "The Distribution of Leprosy in North America," by DR. JAMES NEVINS HYDE, of Chicago. Reference was first made to the different ways in which leprosy could gain entrance into the United States. The northern part of the country has suffered far less than the southern, and even in the latter portion the disease is more common in the southern than in the northern districts. The United States is exposed to the entrance of leprosy from the four principal points of the compass—north, south, east, and west. That the total result up to the present time is insignificant has been due not to wisely directed vigilance, but rather to the general excellence of the habits, of the resources, and of the environment of the people.

At the present time the distribution of leprosy in the United States cannot be determined with any accuracy. The credit of being the first to collect statistics as to the number and location of lepers is due to the American Dermatological Association. According to these statistics and those of others, it may be said that the cases of leprosy in the United States have been distributed as follows: Arkansas, 3; California, 158; Dakota, 2; Florida, 6; Georgia, 1; Idaho, 2; Illinois, 13; Indiana, 2; Iowa, 20; Louisiana, 83; Maryland, 4; Massachusetts, 5; Minnesota, 120; Missouri, 2; Mississippi, 2; New York, 100; New Jersey, 1; Oregon, 3; Pennsylvania, 6; Utah, 3; Wisconsin, 20—making a total of 560. The accumulation of cases is found to be principally at points of commercial activity. The number of lepers in this country at the present time cannot be definitely stated.

These facts call for intelligent discussion and for wise provision looking after the needs of the unfortunate leper and for the safety of the community in which the infected are now living. Tuberculosis alone, at the present, exposes to a greater danger than leprosy the health of our population. The presence of leprosy in this country offers a constant menace to its inhabitants and constitutes a problem in state and sanitary science which the general government alone can readily solve.

DR. JAMES C. WHITE, of Boston, read a paper entitled "The Contagiousness, Prophylaxis, and Control of Leprosy," in which he contended that the establishment of the proof of the contagiousness of a disease should be based upon the following points: 1. The history of its action upon communities or nations. 2. The study of its action upon individuals. 3. Its resemblance to other affections generally regarded as contagious. 4. The establishment of a satisfactory cause for such contagion. 5. The influence of control upon its history and course. These tests were then applied to the disease under consideration.

1. The history of its action upon communities and nations. Reference was made to its course in medieval Europe, where, introduced from the East, it became a pestilence of such overwhelming proportions that no influence of heredity alone could account for its spread. Belief in its contagious nature was then universal. In our own day, the extraordinary rapidity of the spread of the disease in the Hawaiian Islands can be accounted for on no other grounds than its infectious nature. The same is true of its introduction and spread in British Guiania, Trinidad, and other places.

2. The study of its action upon individuals. Great difficulty is here met with on account of the long period of incubation of leprosy, which may be of two, five, or even ten years' duration. Such a retardation of the tangible effects of the contagion renders direct historic proof in individual cases almost an impossibility. Again, the tissues of animals other than man thus far studied show themselves indifferent to inoculation-experiments. The possibility of using human tissues for such demonstration in satisfactory sufficiency is too remote for serious consideration. In one case a condemned crim-

inal was inoculated and three years later leprosy appeared. Reliance must, therefore, be placed upon a careful study of the beginning of endemics in small communities. Another kind of evidence is the acquisition of the disease by immigrants of non-leprous nationality into leprous countries. Of this there are many instances on record. Another important fact is the development of leprosy among the personal attendants of lepers. Of this several instances were cited.

3. Resemblance to other affections generally regarded as contagious. Under this head reference was made to the many points of resemblance between leprosy and syphilis and tuberculosis, and it was held that these strong resemblances suggested an intimate relationship in etiology and pathology.

4. Establishment of a satisfactory explanation of its contagiousness. With the discovery of the bacillus lepræ, the cause of the contagious nature of leprosy was demonstrated as clearly as was that of tuberculosis by the discovery of the bacillus tuberculosis. Leprosy is preëminently a bacillary disease, for this organism is found in profusion in the tissues.

5. Influence of control upon its history and course. In medieval Europe when the disease was regarded as infectious, the leper was segregated and placed in lazarettos. In later centuries, when the disease had been thus controlled and confined to a few districts, the belief grew up that the disease was not contagious, but was hereditary, and scarcely anyone thought of questioning this dictum. At the International Medical Congress in 1876, Dr. White called attention to the prevalence of the disease in the United States. In 1882, he again called attention to the subject in a paper presented to the American Dermatological Association. His conclusions that the disease was increasing to an alarming extent, and that it was contagious, at that time found few supporters, but since then professional opinion has greatly changed. A study of the disease in other countries shows that where laws for its control have been enacted there has been a great diminution in the number of cases, and that where it has been given free license, the number of cases has rapidly increased.

While not denying the possibility of the hereditary transmission of leprosy, Dr. White held that its apparent occurrence in any instance should not be accepted without the absolute demonstration of the impossibility of inoculation after birth. He believed the theory of heredity to be a dangerous one, and that the sterner judgment of the middle ages, which made the leper individually, rather than the progenitor, the responsible agent, must again be adopted before the affection can be exterminated.

With regard to the prevention and control of leprosy in the United States, the consideration of the following propositions was recommended:

1. Every physician should be compelled by State law to report to the nearest Board of Health the existence of a case of the disease, and neglect to do so on the part of the medical attendant, or a member of the leper's family, should be a penal offence.

2. Immigrants affected with the disease should be arrested at ports of entry and along our border, and turned back to their previous homes by the authority of the National Board of Health.

3. Graded hospitals should be established by the National Government, in insular localities, if possible, within which both suspected and confirmed cases should be confined, and to which all access should be prohibited, excepting under proper restrictions.

Such compulsory isolation may be considered cruel to the few, but its longer neglect on our part is certainly a greater cruelty to the many, for in no other way shall we exterminate this most miserable disease.

In the general discussion, DR. GEORGE H. FOX, of New York, said that whatever might be the result of inoculation-experiments he was sure that those who had given special attention to the study of leprosy would agree that the disease was communicable, but that the danger of infection from association with the leper is extremely slight. In the United States the disease has never shown any tendency to spread among those brought in contact with communities of lepers. He thought that there was no necessity for the segregation of the lepers to be found in the United States. To forcibly take these individuals from their homes would be an injustice which the slight menace to the general health would not warrant. Syphilis and tuberculosis are much more liable to be communicated to others than is leprosy. He believed that many cases of leprosy are amenable to treatment and capable of being cured, and he would be in favor of the establishment of hospitals for leprosy where these cases could be studied.

DR. JOSEPH D. BRYANT, of New York, advocated the institution of active measures because such a course would be a humane one as far as the leper is concerned; it would be conducive to public security and confidence, and it would secure good sanitation and better therapy. He offered the following propositions: (1) that a wise public policy and humane considerations demand that lepers be not permitted to associate with the unaffected; (2) that the exercise of local authority for their segregation is unwise and unsanitary, as establishing innumerable abiding places for the disease at great expense and without the assurance of proper surveillance; (3) that a safe, prudent, and humane policy demands that lepers be properly segregated under the care and control of the general government.

DR. WALTER G. WYMAN, Surgeon-General U. S. Marine-Hospital Service, read a paper on the "National Control of Leprosy," which will appear in a future number of THE MEDICAL NEWS.

DR. ARTHUR VAN HARLINGEN, of Philadelphia, dwelt upon the importance of all physicians studying leprosy so as to be able to recognize its earlier manifestations, which are frequently overlooked. He had good reason for saying that, notwithstanding the rigid quarantine-laws, many cases of leprosy had gained access to the country, although they had been subjected to some sort of an examination. This is due to a failure to recognize the early manifestations of the disease.

A paper on "The Diagnostic Features and Treatment of Leprosy," by DR. P. A. MORROW, of New York, was read by title.

(Continued on page 622.)

Dr. J. Madison Taylor has resigned the position of Clinical Professor of the Diseases of Children in the Medico-Chirurgical College.

Dr. W. W. Keen has been appointed a member of the Board of Visitors of the West Point Military Academy.

AMERICAN SURGICAL ASSOCIATION.

(Continued from p. 609.)

SECOND DAY—MAY 30TH.

DR. J. S. BILLINGS read a paper entitled "Methods of Teaching Surgery," which appears elsewhere in the present number of THE NEWS. (See p. 593.)

This was followed by a communication from DR. JOHN CHIENE, of Edinburgh, on "The Teaching of Surgery."

In discussing this subject one must begin with a warning; the personal equation, relating to himself, and the traditional equation, relating to his school, must be allowed for and discounted.

The teaching of surgery resolves itself into two divisions: 1. Systematic consideration of general principles, illustrated by clinical examples. 2. A clinical (bedside) opportunity given to observe, to use and to educate all the faculties, physical and psychic. Under either head the teacher must be a learner; the student must be a teacher. The teacher has constantly to warn the student against a blind belief and at the same time he has to speak most decidedly in giving his opinion. The practice of surgery, to be successful must be dogmatic. It has been objected to systematic lectures that, now that we have books, there is no need of a hundred lectures on any subject. Those who hold these views can never have known the stimulus of speech; can never have felt the electric impulse passing between hearer and speaker.

The method of teaching surgery in Edinburgh was then described.

A final word was added with reference to the teacher of surgery. Dr. Chiene believes in a fallow time, in a time of rest from mental activity. The best rest is change of scene. He suggested the advantages that would accrue from an interchange of chairs in the great English-speaking educational centers. In this way a teacher would once in seven years leave his alma mater for a session and speak to the students of another school. Or the fallow might take another aspect: give a teacher a session off every seven years and let him do in it what seems to him good.

The discussion of these papers was participated in by Dr. J. Collins Warren, of Boston; Dr. W. W. Keen, of Philadelphia; Dr. Hunter McGuire, of Richmond, Va.; Dr. Charles B. Nancrede, of Ann Arbor, Mich.; Dr. P. S. Conner, of Cincinatti; Dr. W. S. Forbes, of Philadelphia; Dr. Robert F. Weir, of New York; Dr. T. F. Prewitt, of St. Louis; and Dr. John E. Owens, of Chicago.

"The Surgery of the Kidney" was the title of a paper by DR. L. MCLANE TIFFANY, of Baltimore. Only those points were considered that offer opportunity for differences of opinion. In the human body bilateral organs are more than sufficient for the carrying on of life; not only may one such organ be removed without interfering with existence, but even the remaining organ may be more or less damaged and yet life be carried on. Any paper on the surgery of the kidney at the present day must take into consideration the influence of disease of the kidney on various operations in general surgery. The influence of anesthesia on the healthy kidney should be considered. In 150 cases of operation in which healthy kidneys were present albumin was found in the urine in only two per cent. of the cases after operation. Every case of railway accident and in some other cases in which the patients had been exposed for a certain time, showed albuminous urine on admission to the hospital. In these cases operation has not been deferred on this account. Cases of advanced diabetes have not been operated on. In cases with healthy kidneys the amount of urine passed in twenty-four hours following operation is diminished in quantity, the specific gravity being usually a little higher.

There is no good reason why the kidney should be separated from the rest of the body and require different surgical treatment. A kidney-wound should be exposed, sutured, drained, tamponed with gauze or a piece of it excised in injury beyond repair, or drained, as the case may be, and not the whole kidney sacrificed.

Nephritis and pyelo-nephritis (so-called surgical kidney) are generally met with by the surgeon and inflammation (organic) resulting from extention upward of inflammation from urethra or bladder due to the presence of bacteria; the bacteriology of the trouble in question is yet to be written. Of so-called pyelo-nephritis, beginning in the kidney, the most frequent cause is stone. The surgeon has especially to deal with the ascending inflammation from the urinary channel below, more often obstructive. The diagnosis is usually not difficult when the disease is advanced. In the early stages the difficulty of diagnosis is great; especially is it difficult to recognize whether the trouble affects one kidney or both. Here it is that the cystoscope offers a great opportunity. A moderate amount of urine, with a low specific gravity and an habitual low temperature, independently of the condition of the pulse, are danger-signals more important than any other. In the recognition of the kidney affected we have to rely on pain, pressure, and the cystoscope. The treatment before operation consists in exciting the kidneys to secrete by means of infusion of digitalis, potassium acetate, and infusion of buchu. Acid urine, and pus suggest pyelo-nephritis very strongly. It is Dr. Tiffany's habit not to operate until the patient's kidneys are acting well. After operation strychnin hypodermatically is a useful addition to the previous treatment. The hot-air bath has proved unsatisfactory in chronic cases. In acute cases it is beneficial. Free purgation is invariably of advantage.

When an operation on the bladder is called for, and there is evidence of disease of one kidney or decided pain in one kidney suggesting disease, that kidney should be operated on at the same time as the bladder. Twice Dr. Tiffany has done lithotomy for stone in the bladder, the lithotomy being done and the kidney opened at the same sitting. All went well. In two other stone-cases, acute suppurative inflammation took place within two weeks, and was followed by death.

DR. ROBERT F. WEIR, of New York, read a paper entitled "The Surgical Treatment of Surgical Kidney." He said that suppurative pyelo-nephritis, suppurative interstitial nephritis, and surgical kidney, are the ordinary names given to a disease that originates, as a rule, in the bladder, and that generally affects both kidneys. In this affection the kidneys are congested and studded

with foci of pus. Dr. Delafield states that "so far as I know, all cases die." While this may be the general result, Dr. Weir reported a case showing that some modification of this prognosis must be made.

A man, twenty-five years old, was admitted to the surgical wards of the New York Hospital on April 2, 1894, with a history of having suffered, four years previously, from an attack of scarlet fever, followed by nephritis. About one year ago he had a mild attack of urethritis. Three months ago he had a severe attack of urethritis, the inflammation also invading the bladder; gonococci were present in the discharge. This gradually subsided under treatment. Twelve days prior to admission to the hospital he had, without assignable cause, a chill, followed by fever. The following day there was pain in the loins, with subsidence of the fever, but the next day the temperature reached 103° F. There was no increase in frequency of urination. The lumbar tenderness gradually increased. He was admitted to the medical wards of the New York Hospital on March 28th; during the next seven days he had four chills, the temperature ranging between 103° and 105°. The patient was seen by Dr. Weir on April 3d. His condition was a most serious one. The urine contained pus, and was fifty or sixty ounces in amount. There was pain in the right lumbar region, with tenderness on pressure. It was thought that some enlargement of the right kidney could be made out. The impression made was that there was an abscess of the kidney, or possibly several sacs of considerable size. It was not thought that the condition was one of "surgical kidney," on account of its one-sided character. On April 4th the kidney was exposed in the usual manner. Puncture in two or three places gave no evidence of pus. An incision was made into the kidney, disclosing numerous miliary abscesses, showing that there was the ordinary surgical kidney. It was then decided to extirpate the diseased organ. Immediately after the operation the temperature fell from 105° to 99°, and the patient made an uninterrupted and rapid recovery, being discharged on April 20th.

It is difficult to say how often the affection is limited to one kidney, but such limitation may not be infrequent. Even when both organs are involved it may be that something can be done for the relief of tension and the egress of pus by the means of a free incision made into the kidney-substance. With the happy experience of this case, Dr. Weir considered it hereafter justifiable, if the patient's general condition warrants it, in a case of acute septic invasion of the kidneys, to make on one or both sides an exploratory incision, not only in the hope of relieving the acute interstitial invasion, but also perhaps of encountering a larger and well-defined focus of pus—a pathologic condition that cannot always be readily discriminated from the more dangerous lesions of the veritable surgical kidney. Should the symptoms point, as in the case narrated, to one kidney only, or should a double exploratory incision yield the same result, a nephrectomy may with some hope be resorted to.

The next paper was on "Surgery of the Ureters," by DR. CHRISTIAN FENGER, of Chicago. He said that accidental wounds and subcutaneous ruptures of the ureter have not as yet been objects of direct surgical procedure upon the ureter at the seat of lesion. Catheterization of the ureters from the bladder for the purpose of diagnosis has given valuable information. The procedure is reasonably practicable in the female. In man catheterization is practicable only through epicystotomy. Catheterization of the ureter from the bladder as a curative measure for the evacuation of a hydronephrosis or a pyonephrosis has occasionally been performed. This is more difficult and uncertain than nephrotomy and the attempt to find and remedy the stenosis of the ureter from the pelvis of the kidney. Dilatation of strictures of the female ureters through the bladder by means of elastic bougies has been tried with temporary success, and through the pelvis of the kidney successfully. Permanent catheterization of the ureter through the bladder, a fistula or implanted ureter is often tolerated only for a limited time and must be attempted with caution. Uretero-lithotomy by the extra-peritoneal method is a safe operation. Intra-peritoneal ureterotomy should be done only when access outside of the peritoneal cavity is impossible, and should be completed by careful suturing, covering with omentum or peritoneal flap and drainage.

Opening the peritoneal cavity to locate the seat of stone may occasionally be necessary, but when the diagnosis is once made ureterotomy should be done by the extra-peritoneal method. In valve-formation or stricture of the ureter causing pyonephrosis or hydronephrosis or a permant renal fistula, nephrectomy should be followed by exploration of the ureter. This is to be effected by a long, flexible silver probe or an elastic bougie. The size of a bougie that will pass a healthy ureter is from No. 9 to No. 10 of the French scale. Operation for valve-formation should be done through the wound in the pelvis. A stricture in the ureter, if not extensive, can be treated by a plastic operation. Resection of the upper end of the ureter and implantation of the distal end into the pelvis has been done with success.

Uretero-uterine fistulas can be treated satisfactorily by plastic closure of the vagina or by nephrectomy. Implantation of the ureter into the bladder is, under favorable circumstances, the operation of the future for this condition. Uretero-vaginal fistulas should be treated by vaginal plastic operation for displacement of the distal end of the ureter into the bladder.

Complete transverse wounds in the continuity of the ureter should be treated by uretero-ureterostomy after the method of lateral implantation if possible. Complete transverse wounds of the upper end of the ureter should be treated by implantation of the ureter into the pelvis of the kidney. Complete transverse wounds of the ureter near the bladder should be treated by implantation into the bladder. Loss of substance of the ureter too extensive to permit of uretero-ureterostomy or too high up to permit of implantation into the bladder may be treated by implantation on the skin or into the bowel. Implantation into the bowel is objectionable. Implantation on the skin in the lumbar region may have to be followed by secondary nephrectomy; this procedure, however, is much less dangerous than the primary operation.

The discussion of these papers was postponed until Thursday morning.

(To be concluded.)

ASSOCIATION OF AMERICAN PHYSICIANS.

(Continued from page 611.)

SECOND DAY—MAY 30TH.

DR. THEOBALD SMITH, of Washington, read a paper on the "Modification, Temporary and Permanent, of Physiological Characters of Bacteria in Mixed Cultures." He dwelt on the antagonism between living bacteria and the products of their activity in the body, and considered the effects of concurrent inoculation in one animal of the germs of two diseases, as hog-cholera and tuberculosis, or of two varieties of one germ. He showed that when the bacilli of hog-cholera as occurring in different portions of the country are mixed and the product of this mixed culture is injected into an animal, the virulence of the disease is diminished. He also stated that when the virulence of hog-cholera is once diminished, it took as long for that virulence to be restored as it had taken for it to be destroyed. He thought that the typhoid-like lesion of hog-cholera is a result either of an attenuation of the virus or of increased resisting power of the animal.

"The Effect of Various Metals on the Growth of Pathogenic Bacteria" was the title of the paper read next, by DR. MEADE BOLTON, of Baltimore. In a series of investigations he has found that certain metals have no marked effect on the growth of bacteria, while others display certain peculiar actions. Metals readily attacked by the chemic reagents possess a marked inhibitory action on the growth of bacteria, and this is due to the fact that the metals are dissolved, and are brought in a soluble form into contact with the bacteria, and in this way the clear zone around the metal is produced.

DR. WELCH, of Baltimore, expressed the opinion that in the intensified ring immediately surrounding the clear zone there is a minimum amount of the metal, while in the clear zone around the metal there is an excess of the soluble oxid of the metal. He was unable to explain the formation of the clear zone surrounding the intensified zone.

DR. W. GILMAN THOMPSON, of New York, presented a "Note on the Observation of Malarial Organisms in Connection with Typhoid Fever." He stated that in the South typhoid fever in all of its clinical manifestations seems to be more or less complicated by malarial fever, while in New York and the North generally, it is quite rare to find such a complication. He reported three cases of typhoid fever thus complicated. He thought that in those individuals who have been subject to malarial paroxysms the pathogenic organism frequently takes advantage of the patient's reduced condition and manifests its presence during these periods of depression. He would offer this suggestion as a possible explanation of the occurrence of the malarial complications of enteric fever. While he believed that it would be unwise to accept the term "typho-malarial" as representative of a third form of disease, he is confident that the two diseases may coëxist in the same patient.

DR. WILLIAM OSLER, of Baltimore, thought it a mistake to regard all cases of typhoid fever attended with chills as complicated with malaria. Chills are quite common in typhoid fever, and in the cases in which they occur, examination of the blood shows a freedom from the germs of malaria. He stated that he had seen a case of croupous pneumonia complicated by malaria which was controlled by the use of quinin.

DR. G. M. STERNBERG, of Washington, considered the so-called cases of typho-malarial fever occurring over the country as mild cases of typhoid fever.

DR. J. C. WILSON, of Philadelphia, thought that the term typho-malarial has done incalculable harm in delaying for more than a generation a clear knowledge of the fevers of the South. It is also an unfortunate term, in that it has concealed obscure cases of true typhoid fever and prevented the observance of proper prophylactic measures. He hoped that the Association would not permit itself to go on record as sanctioning a return to the old term of "typho-malarial."

DR. FREDERICK C. SHATTUCK, of Boston, suggested the probability of the existence of inflammation of some of the internal veins as the cause of the chills of typhoid fever.

DR. REEVES, of Chattanooga, thought it probable that there is a species of fever intermediate between typhoid and malarial fever, to which the term typho-malarial is applicable. Cases thus affected have no diarrhea, no epistaxis; there is a typical rise and fall of temperature, and the course of the disease throughout is different from that of typhoid fever. Typho-malarial fever occurs most commonly among children.

DR. GEORGE DOCK, of Ann Arbor, remarked that the common view held is that typho-malarial fever is milder than true typhoid fever; he does not believe that this view is correct. He had failed to discover any case of typho-malarial fever while practising in Texas. It is a mistake to think that the term "typho-malarial fever" is used only in the South. He has repeatedly met with cases so designated in the North which were, in fact, cases of true typhoid fever.

In closing, DR. THOMPSON said that he would emphasize the value of routine examinations of the blood in all cases of fever, and the administration of quinin in those cases in which the malarial organisms were discovered.

DR. GEORGE DOCK, of Ann Arbor, read a paper entitled "Experiments in Artificial Melanosis." He said that he had been led to make these experiments because of the recognized difficulty in determining the relationship existing between phagocytosis and malaria. He had repeated Ponfick's experiments in the hope of learning more of this interesting process. He employed lampblack in place of cinnabar, which was used by previous experimenters. A suspension of lampblack in a physiologic salt-solution was injected in animals, and sections of the organs made immediately after death. The injecting fluid was made as dense as possible, and injections of two drams were made into the veins of the legs of dogs. The animals were allowed to live one or two weeks, when they were killed. In some instances eight successive injections were made in as many days, so that considerable pigment was introduced into the circulation. In dogs the leukocytes are largely polynuclear cells, closely resembling the polynuclear cells of man. The pigment was found in the circulation within an early period, but it was not found in the leukocytes before fifteen minutes had elapsed, and usually not before thirty minutes. The results were always the same, namely, the pigment was found only in the polynuclear cells. The pigmented leukocytes

circulated for from one to three days. The pigment was found in the largest quantity in the lungs, next in the spleen, and finally in the liver. In the other organs the amount was very small or the pigment was entirely absent. There was very little found in the kidneys and lymph-glands; there was usually none in the brain, and in the intestines and stomach there was very little found. Most of the pigment in the organs was found, as elsewhere, in the polynuclear cells. A curious feature was the distribution in the liver. The pigment in that organ was at first found in the portal area, and here it remained for some time, free in the hepatic capillaries. Later it made its way toward the central vein and the radicles leading into this vein, forming in this way a stellate arrangement. The pigment in this organ was not only free, but also apparently was found in the endothelial cells, and also in the cells of Kupfer.

DR. THOMAS M. ROTCH, of Boston, presented a paper on "Some of the Chemical and Bacteriological Characteristics of Milk." In order to arrive at a more accurate knowledge of the composition of human milk, he had collected a liter and a half of milk freshly drawn from the breast. This had been submitted to a chemist for estimation as to its mineral constituents, and the presence of silicon and other constituents in milk had for the first time been demonstrated.

(To be concluded.)

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

(Continued from p. 613.)

SECOND DAY—MAY 30TH.

The business meeting was held at 9 o'clock A.M., when the following officers were elected for the ensuing year: President, L. Bolton Bangs, of New York City; Vice-President, Francis S. Watson, of Boston; Secretary, William K. Otis, of New York City; Member of Council-at-Large, Dr. J. A. Fordyce, of New York City.

The next meeting of the society will be held at Niagara Falls during the last week of May, 1895.

The usual morning session was called to order at 10 o'clock.

The first speaker of the day was DR. WILLIAM K. OTIS, of New York City, who read a paper entitled "Aëro-urethroscopy with a New Instrument." Attention was called to the unsatisfactory results attending the use of the ordinary urethroscope. Von Antal in 1887 conceived the idea of distending the urethra with air, which would thus permit of the inspection of every portion. Dr. Tilden Brown independently devised an instrument for the same purpose. The instrument of Brown has been modified by Fenwick. Dr. Otis has further modified the instrument so that it is light in weight and much simplified in construction. Although this is a distinct advance in urethroscopy, the view is still not so satisfactory as could be desired. It is serviceable in certain cases, however, that have heretofore been most difficult to treat.

In view of the fact that the instrument for catheterizing the male ureters has not been completed, Dr. Otis withdrew the formal paper on that subject, and described briefly the principle of the new instrument.

DR. BELFIELD showed instruments for inspecting the deep urethra and the neck of the bladder in the region of the trigone.

DR. EDWARD MARTIN concurred in the remarks of Dr. Otis on aëro-urethroscopy. Respecting catheterization of the male ureters, his experience has not been uniformly satisfactory.

DR. F. TILDEN BROWN, of New York City, described "New Instruments and Apparatus." The first instrument was a silver spring-catch, to hold the catheter in place in cases in which it is necessary to maintain drainage after perineal cystotomy. The catch is held in place by tapes. The second instrument was an improved needle-holder for Hagedorn's needles. The next was a modification of Clover's crutch. It has a rectangular bar, and is composed entirely of metal and canvas straps. The strain usually borne by the neck is transferred to the shoulders, and is thus much less irksome. An appliance accompanies the instrument to keep the feet out of the field of vision in class-room demonstration.

In the discussion, DR. BRYSON said that he has found that the best method of draining the bladder through the perineum is by means of an instrument with an eye similar to that in Bigelow's evacuator.

DR. WILLIAM H. HINGSTON, of Montreal, Canada, read a paper on "Stone in the Bladder; Choice of Operation." He dwelt particularly upon the much wider applicability of litholapaxy than was formerly thought to be the case. He believes that in disease of the bladder, or of the kidney, or in the presence of unhealthy urine, the lithotrite is as safe as the lithotomist's knife. Neither is old age or youth a contra-indication: "Lithotritize (Bigelow's operation) in all cases of adults if the stone is not too large or too hard; lithotritize in adults if the urethra is or can be made of proper size to admit the instrument; lithotritize all children if an instrument can be passed." The capacity of the urethra in the child is greater than inspection would indicate. In old age, if a cutting operation is necessary on account of enlarged prostate or tumor, the supra-pubic operation should always be resorted to. In other cases the lateral perineal operation, when applicable, is the best of the cutting methods.

In the discussion, DR. CHISMORE coincided in most respects with the views expressed by Dr. Hingston. Particular stress was laid upon the advantage of the supra-pubic route in cutting for stone in cases with enlarged prostate glands.

DR. BANGS stated that in some of these cases it is necessary not only to remove the stone, but also to treat the stone-disease. For this reason he thinks it frequently becomes necessary to do some cutting operation for the purpose of draining both the bladder and the kidneys.

DR. WIILLIAM JUDKINS reported the case of a boy from whom he had removed a vesical calculus by the supra-pubic method. On the second day pneumonia developed, and on account of the coughing and straining some of the stitches gave way. However, the patient recovered, and some time later passed *per urethram* a stitch covered with a phosphatic deposit. There is now a repetition of the vesical irritation, and it is probable that other stitches have found their way into the bladder and that they are causing the symptoms.

DR. JOHN P. BRYSON, of St. Louis, read an article

entitled "Urine-leakage and Stricture-formation." Attention was called to the erroneous description of the histology of the tissue composing strictures of the urethra, and the tissue surrounding urinary fistulæ, as heretofore given and so widely copied. Drawings from microscopic sections of the two tissues exhibited showed that in each the essential conditions are the same; the minor differences are only such as may well be explained by differing conditions. The following conclusions were expressed:

1. The close resemblance in the tissue-elements, their arrangement, and effects upon the related normal structures point to the identity of the etiologic factor and give support to the doctrine of urine-leakage.

2. Observing the prolongation of the urethral epithelium on the fistula-wall, in an effort to create an adequate artificial channel for urine, and seeing that the epithelium lining the stricture also participates in the battle against urine-leakage, we may take fresh hope of radically curing strictures, even of the pendulous urethra, by such means as tend to restore or rehabilitate the urethral lining.

3. Merely diverting the stream of urine for a time, without such restoration of the lining mucous membrane, would fall into the category of palliative treatment, along with urethrotomy and the various methods of dilatation.

DR. J. BLAKE WHITE, of New York City, next read a paper upon the subject of "The Possibility of Overcoming Permanent Stricture of the Deep Urethra without resort to External Urethrotomy." He called attention to the frequently-observed fact that an anterior stricture of large caliber, or a contracted meatus, will cause spasm of the deep urethra, which will effectually prevent the passage of any instrument. Two cases were reported, in each of which, although intense spasm existed, deep organic stricture also was present, appearing to demand external perineal urethrotomy. The spasm was found to relax completely on enlarging the meatus to the proper size. The treatment of the deep strictures by gradual dilatation could then be proceeded with.

In the discussion, DR. EDWARD MARTIN assented to the views expressed by Dr. White. He thought too frequent recourse to the knife had been the tendency of recent years, and he related cases affording convincing proof of the value of dilatation, up to full size, in the treatment of stricture.

DR. BRYSON also thought that division is practised in the treatment of strictures with unnecessary frequency.

DR. ALEXANDER W. STEIN, of New York, presented a communication upon "Some Infrequent Symptoms of Disease of the Urinary Tract." He referred to cases of membranous casts from the bladder and urethra. The cause usually given is retention of urine. Of fifty reported cases, forty-five were in women and five in men. The causes of retention in the females was either a retroverted uterus or pressure of the child's head during prolonged parturition. The prognosis is usually good; of forty-five cases, but nine terminated fatally. The case was reported of a man, twenty-six years old, who had frequent attacks of renal colic on the left side, and who on one occasion had retention for twenty hours; finally he passed a stone *per urethram* with relief of the retention. The attacks of renal colic continued. Later, he was subjected to litholapaxy for stone in the bladder. Still later, he began to pass "fleshy" masses of large size. The urine was loaded with pus and was offensive. Improvement followed antiseptic irrigations of the bladder. The patient was lost to observation, and it was reported that he afterward died. The cause of death could not be learned, but as the termination was preceded by stupor, it was possibly uremia.

(To be concluded.)

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Sixteenth Annual Session, held at Washington, D. C., May 30th, 31st, and June 1st.

FIRST DAY—MAY 30TH.

DR. D. BRYSON DELAVAN, of New York, delivered the President's Address.

He pointed out that the history of the Association is in reality the history of laryngology, for Manuel Garcia, the discoverer of the laryngoscope, is still living, while the list of Corresponding Fellows has contained the names of the most distinguished specialists of the age. The laryngoscope was first introduced into this country in 1860. Sixteen years later its use was taught in twenty-five different institutions, and this special line of work had attained a position of acknowledged responsibility. In 1878 the inaugural meeting of the Association was held in Buffalo, and its first President was Dr. Louis Elsberg.

The foundation of the Society was a pre-conceived movement in the direction of a higher and broader education. It was a vigorous effort to advance and disseminate the knowledge of laryngologic work. The meetings have always been well attended, the papers contributed scientific, and the discussions vigorous. These facts are attested by the fifteen creditable volumes of *Transactions* for which this Society stands sponsor. The honor of establishing the first laryngological society, either here or abroad, belongs to New York city. This Society (The New York Laryngological Society) was founded in October, 1873, at the suggestion of Dr. Clinton Wagner. The effect of centralized effort, of that healthful competition which is the inevitable and invaluable result of the free intercourse and friendly rivalry made possible by these societies, has nowhere shown its influence more conspicuously than in England. In that country the study of laryngology has been advanced with the energy and enthusiasm of a true renaissance. It is therefore a great satisfaction that this strong and onward movement has seen America in the van; but this very success imposes its own peculiar responsibilities, and if we are to maintain our present position we must still strive for superiority.

Coincident with the growth on the practical side of laryngology has been its increased recognition in the columns of the general medical journals, in the establishment of journals devoted to the special work, and in the production of a large number of epoch-making treatises.

The motto of this Association is "*Docendo discimus*—by teaching we learn." To reach the higher usefulness we must be teachers, and the maintenance of the high place which the Association at present occupies necessitates the thorough carrying out of this idea. We must

qualify ourselves by absolute purity of purpose, oneness of aim, and actual scientific superiority. Then we must proceed to study and carry out such plans as shall place the greatest amount of sound learning in the hands of the largest number of well-qualified men. The question of education, in other words, is by far the most important problem before the medical profession to-day. In it are involved all hopes for the future, not only as to professional reputation, but also (what is of far more importance) as to the beneficent ends to which it is hoped laryngology may attain. The most opportune office of the Association has always been and always must be teaching. The very fact that its membership includes the leading teachers of this country imposes the obligation to the profession at large, which cannot be under-estimated, and still less cannot be set aside.

Undergraduate instruction has in this country reached a high degree of perfection, and at least one institution stands concededly superior to any other, both as to its plan of instruction, its equipment and its general discipline; but many other schools also, in different parts of the country, are doing good work. This question, therefore, of instruction, so far as it relates to undergraduates, may be said to have been fairly considered and successfully met.

But undergraduate institutions have at points failed to answer all the needs of the higher medical education, and there have, therefore, sprung up the various schools of instruction for graduates. It is in this way that laryngology has received a startling popularity, to which the great growth of special literature has largely contributed. The problem thus created is perhaps the most important one of to-day, and it cannot be so easily solved as has been that of the undergraduates, because the students at these graduating schools present a vastly greater variety of personal needs and professional attainments. They are in addition frequently hampered in their progress by pre-conceived ideas that have been honestly derived from their own professional experience. The meeting of these diversified needs imposes upon the instructor a weighty task. The ideal instruction for graduates pre-supposes three things: (1) a higher and more thorough general medical education on the part of the student; (2) a more careful selection in the choice of instructors; (3) a modification of the best undergraduate methods to satisfy the needs of the older men.

DR. W. E. CASSELBERRY, of Chicago, read a paper on "Nasal Polypus; its Treatment by Resection of the Middle Turbinated Bone," giving an analysis of forty cases. Nasal polypus is to be regarded not so much as a disease in itself as symptomatic of other nasal affections. The most frequent of these are the various forms of ethmoiditis. Vigorous surgical treatment was advised, with the object of gaining access to the vicinity of the hiatus semilunaris, from which region polyps generally grow. He prefers the curet to the galvano-cautery for destroying the attachments of the growths. More recently he has advocated the resection of the antero-inferior part of the middle turbinated bone in order the more efficiently to bring about this result. He classifies the various conditions found associated with and underlying the polyp-formation as follows:

I. *Nasal polypus, with hypertrophic rhinitis.* Here there is no evidence of ethmoiditis, though it is suggested by the pressure of the polypus. Defective drainage and the accumulation of muco-pus in the middle meatus predispose to such polyp-formation. Removal of the polyps is followed by recovery without recurrence, the cautery being applied to the hypertrophied bodies of the turbinates. Six of the forty cases reported were of this class.

II. *Nasal polypus, with simple myxomatous ethmoiditis.* Here the turbinates have a glistening appearance and a pultaceous feel. Pressure results in the ethmoid region, with its various symptoms. The middle part of the bone should be resected and the myxomatous area thereby laid bare. Fourteen of the cases belonged to this group.

III. *Nasal polypus, with vasomotor ethmoiditis.* This is a variation of the preceding type. This group comprised nine cases. Four suffered from hay-fever, indicating the presence of a neurotic habit, and in all asthma was present. All were especially sensitive to excitants through the olfactory sense.

IV. *Nasal polypus with suppurative ethmoiditis.* Here there is a purulent discharge from the ethmoid cells, frequently coëxisting with empyema of some one of the accessory sinuses. The condition is a sequel of the preceding varieties, suppuration occurring only after the myxomatous tissue has accumulated sufficiently to obliterate the natural drainage. Six cases came under this heading.

V. *Nasal polypus with necrosing ethmoiditis.* Dr. Casselberry expressed his adherence to the views of Woakes to a certain extent, but regarded caries of the ethmoid as a usual accompaniment of polyps. Only five cases were found with unmistakable bone-necrosis. To such, and such only, should the term "necrosing ethmoiditis" be applied.

In all, the establishment of free drainage is a *sine qua non* of successful treatment. This often necessitates the removal of a portion of the middle turbinated. To effect this Dr. Casselberry has devised curved, serrated scissors, the use of which can be supplemented, if need be, by the snare or sharp forceps. Several sittings may be necessary to complete the operation; but if the middle turbinated presents no obstacle to normal drainage there is no occasion to remove it.

The discussion upon this paper was general, and the speakers all decried reckless and unnecessary surgical procedures in the nose, but there was a general unanimity that nothing short of radical measures would cure the chronic cases. Severe hemorrhage has resulted from the procedure recommended by Dr. Casselberry, and one (doubtful) case of cerebral abscess. Acute cases of ethmoidal trouble will frequently subside of themselves if local antiphlogistic measures alone are employed.

DR. JONATHAN WRIGHT, of Brooklyn, read a paper entitled "Papillary Hypertrophy of the Nasal Mucous Membrane Compared with a True Papilloma." He exhibited drawings showing the differences between these two conditions. True papilloma of the nose is very rare. The typical specimen described in the paper was removed from the uvula and the nasal specimen from the middle of the inferior turbinated bone. The papilloma consisted of a thick stem with irregular sprouts, some simply conical, springing directly from the central stem, but the larger number sub-divided into their own stem

and sprouts. The whole resembled a budding tuberous vegetable. The mass was without glands and had only small capillaries and a slight branching framework of connective tissue. This latter was covered everywhere with a large number of regularly striated layers of flat epithelial cells.

A drawing of the nasal growth showed a symmetrically rounded mass with cross-lines dividing it into more or less regular portions, resembling the "mulberry" hypertrophy which is so often found on the posterior portions of the inferior turbinated bones. In this particular instance, the mass was sessile but movable. Nearly an hour was occupied in its removal by the cold snare, but a sharp secondary hemorrhage resulted three hours later.

As contrasted with true papilloma, almost any fold of the nasal specimen was in connection with the central mass, without any appearance of the budding process. The line of surface epithelium was not especially thickened or irregular. The growth consisted, in fact, of all the constituent parts of the nasal mucous membrane of the inferior turbinated. The venous sinuses were markedly dilated. Glands were present, but only in small numbers. A great increase in fibrous connective tissue was noticeable. This was divided at the periphery into distinct processes covered by epithelium, and the intervening depressions gave the whole a nodular appearance.

Such growths are true papillary hypertrophies of the erectile sinuses of the bone-covering, and are due to the results of chronic inflammation. This latter causes a continuous and exaggerated contraction and dilatation of the sinuses in a stroma deprived of much of its muscular and elastic support.

"The Use of Metallic Electrodes in the Treatment of Nasal and Post-nasal Disease," was the title of a paper read by DR. CLARENCE C. RICE, of New York. His plan is to make use of the galvanic current, and to construct the positive electrode of some oxidizable substance, such as copper. This pole may be made in various shapes suited to the nose and naso-pharynx, and varying with the end aimed at. The negative electrode is the usual flat sponge, placed at some indifferent point, preferably the nape of the neck. When the current passes, the copper is dissolved and a new salt thereof, the oxychlorid, is formed and carried into the tissues. This is called "metallic," or "interstitial" electrolysis. Lime and iron can be used instead of copper, if desired. This plan of treatment has been elaborated by Gautier, Morton, Cleaves, and others, and is suggested by the well-known phenomena of cataphoresis.

It claimed that the salt is actually carried into the tissues, that hypersecretion action in this way is much more efficient than when it is merely applied in solution to the surface and that its influence is exerted upon the sub-mucous soil which is the seat of the pathologic process. The advantages are really three-fold, as we have the usual electrolysis of the tissues and the stimulating effect of the current.

The class of cases in which Dr. Rice had found the treatment of especial benefit included several of hypersecretion from the nasal mucosa, irritable cough from laryngeal and pharyngeal catarrh, and enlarged turbinated bones. In the latter instance the pole could advantageously take the shape of a copper needle. He had found the latter preferable to the galvano-cautery tip in checking bleeding from erosions of the nasal septum, and preferable to the caustic acids in reducing enlarged turbinated bones. He had not exceeded from 5 to 10 milliampères in the actual application of the current. Of twenty cases of the foregoing diseases treated six had been cured and three-fourths of the remainder distinctly benefited. Cocain was used if necessary.

(To be concluded.)

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

(Continued from page 615.)

THIRD DAY—MAY 31ST.

The first part of this session was under the care of the American Association of Genito-urinary Surgeons.

DR. E. L. KEYES, of New York, read a paper on "Nephritis in Its Surgical Aspects." He confined himself to a consideration of that form of surgical nephritis in which suppuration occurs, either spontaneously in the course of suppurative disease of the urinary tract below (ascending pyelonephritis), or originating below as a result of infection by the surgeon, or in the blood (the descending variety)—all the various forms of so-called surgical kidney. It was first shown that without microbic infection suppuration in the kidney is impossible. The bacilli found most often are, notably, the bacterium coli commune, less often (alone or in company with the bacterium coli) the staphylococcus pyogenes aureus and the streptococcus pyogenes. These bacilli find entrance in a variety of alleged ways. The introduction alone of these bacilli does not occasion ascending pyelitis, or even necessarily cystitis. It is as much a question of soil as it is of seed. The soil is made receptive for microbic invasion by a variety of local physical maladies, by anything that interferes with free urinary outflow, by over-distention or tension, and also by traumatism and failure of the general vitality. The kidney is especially prepared for invasion by dilatation of the ureters, a condition always taking place from above downward, always due to a moderate obstruction of urinary outflow below—never to sudden stoppage of the urinary drainage, never due to back pressure of the urine.

The bacteriologic part was conducted by Prof. Dunham, of Bellevue Hospital Medical College, under Dr. Keyes' direction, to determine the destructive or inhibitive power over the three bacilli under consideration of a great variety of medical substances often used for local antiseptic purposes in the treatment of vesical suppuration and of a variety of urines medicated by the ingestion of a number of different drugs. About five thousand tubes were examined, the conclusions generalized and tabulated, with the result of showing theoretically which drugs possessed the greatest value under varying conditions, those of direct infection by the surgeon, the tissues not being involved, and those in which, chronic suppuration already existing, the bacilli were protected from the action of the antiseptic. These conditions were reproduced in the laboratory, a method of investigation apparently novel and yielding suggestive results. This investigation showed that silver nitrate is by far the most reliable

agent we possess in counteracting the effects of local contamination, while corrosive sublimate is more reliable when the tissues are involved. Salicylic acid was shown to be a very reliable antiseptic. Boric acid has little or no value, common salt being about as good.

The following general conclusions were presented: 1. Healthy urine is sterile. 2. Purulent urine is always microbic. 3. Microbic infection takes place from within the body by a number of methods in the course of disease; it is often brought about by instrumental manœuvers on the part of the surgeon. 4. A healthy organism and a vigorous bladder can cope successfully with microbic invasion and rid themselves, spontaneously or with a little aid, of all damage arising therefrom, showing little or even no inflammatory response. 5. A suitable condition of the patient's soil is essential to the propagation and perpetuation of the inflammatory phenomena upon the urinary tract after microbic invasion. 6. This condition, intensified by traumatism and physical weakness, notably of the degenerative variety, is most intense when there is vesical distention, with atony, and when the ureters are dilated and the kidneys involved in the changes incident to tension below, namely, atrophy, and sclerosis above, with or without superficial catarrh. 7. Under these circumstances surgical pyelonephritis is most likely to declare itself as a result of microbic infection from below (occasionally from above) in the course of suppurative disease. 8. Asepsis, antisepsis, and sterilization of urine are ends to be aimed at in genito-urinary surgery, but like all other "greatest goods," have not yet been attained in perfection. Much, however, can be done by local means in a prophylactic and curative way, little by internal medication, and possibly as much or more than by other means by flushing the urinary passages with natural mineral waters.

DR. GEORGE M. STERNBERG, Surgeon-General U. S. A., read a paper on "The Bacteriology of Pyelonephritis." He pointed out that ascending nephritis or pyelonephritis is very commonly secondary to cystitis of long standing. Recent researches show that the bacillus coli communis is found more frequently than any other microörganism in the so-called "surgical kidney." This bacillus is now known to be the usual cause of peritonitis. It has been obtained in pure culture in a number of cases of abscess of the liver, from urinary abscesses, and from the pleural cavity in certain cases of pleurisy.

Injections of a pure culture into the ureter after tying this below the point of injection have been shown to give rise to pyelo-nephritis, and the changes induced are said to correspond with those seen in the "surgical kidney" of man. Non-liquefying bacilli have been found in the urine of cases of chronic cystitis and of pyelonephritis, which appear to be identical with the bacillus coli communis, which has been shown to be very variable in its growth in various culture-media—upon gelatin the growth is sometimes transparent and sometimes opaque.

The bacillus coli communis has also been found in a considerable number of cases of cystitis.

In view of these facts the etiologic relation of this bacillus to ascending nephritis seems extremely probable. Certain cases appear to be due also to the presence of one or more species of proteus, and possibly to other microörganisms.

The second part of the session was under the care of the American Gynecological Society.

DR. WILLIAM GOODELL, of Philadelphia, said that he had taken the liberty of changing the title of his remarks from "The Conservative Surgery" to "The Conservative *Treatment* of the Female Pelvic Organs." This enlarged the scope of the subject and was more in keeping with his views; for he held that besides strictly surgical ones, there were other kinds of conservative treatment which are especially adapted to the ailing female organs. He considered the whole question of the proper treatment of those disorders to hinge on the effect of castration on women. These effects are prolonged and distressing vasomotor disturbances, and a tendency to morbid brooding, low spirits, melancholy, suicidal impulses, and even to insanity. Then again castrated women are liable to become unsexed to that extent as to lose all sexual feeling, or to have this greatly blunted. In some cases senile atrophy of the genitalia takes place, or a hypertrophic condition of the vulva occurs which forbids coition and causes much domestic unhappiness. An inevitable and deplorable result is sterility, which is often a cause of great sorrow. Stress was laid upon the prevalent lay opinion that women deprived of their ovaries are thereby wholly unsexed. Castration in the male and in the female is alike regarded as a sexual mutilation to which is attached a stigma. No woman would marry a eunuch and few men would wed a woman without ovaries. It is then manifest that during the period of woman's menstrual life her mental, physical, and social welfare depends largely upon the continuance of the catamenial and reproductive functions. Hence the conservation of those organs which preside over these functions is of the utmost importance.

Hasty operative interference, based on the plea that chronically diseased appendages are dangerous to life, is reprehensible, as few women perish from chronic disorder of these organs, even when pus is present. More women die from the radical operation than from the disease itself. To restore such women to health, abdominal section is by no means always necessary. Many have been cured by curetting and draining the womb. Others get well under the use of rest, massage, electricity, alteratives, and local applications, even when removal of their appendages has been recommended. In some instances this treatment is followed by conception and pregnancy.

The possibility of a closed-up Fallopian tube regaining its lumen is warmly disputed; but as uterine fibroids of large size spontaneously disappear through retrogressive metamorphosis, why may not the thin tubal septa of inflammatory origin also melt away with restoration of the bore of the tube? Examples were cited in which great disorganization of the tubes and ovaries did not prevent conception. Cases were also related in which a small fragment of an ovary or a short stump of a tube was left behind and pregnancy subsequently took place.

In view of these interesting facts, Dr. Goodell advised that when medicinal measures fail and the final appeal is made to the knife, as little as possible of the appendages should be taken away. If the tubes and ovaries are simply adherent and not otherwise damaged, they should merely be freed from these adhesions and not

extirpated. If they are diseased, only the unhealthy portions should be removed. He had found that a piece of ovary not larger than a small bean was quite ample to maintain intact menstruation and the sexual feelings.

He contended that the aim of modern surgery is conservation. Limbs, members, and organs are now saved which formerly would have been sacrificed. This is its glory, and this has been brought about by antisepsis. On the other hand, antisepsis by the glamor of success so dazzled modern gynecology as to make it a spoiler rather than a conservator. Reform here is greatly needed, the reform of conservative gynecology.

(To be concluded.)

CORRESPONDENCE.

PNEUMONIA FOLLOWED BY MANIA.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of March 3, 1894, p. 236, Dr. J. B. Campbell reports three cases of pneumonia followed by mania. His report prompts me to relate the following case: On the night of December 21, 1893, I was telegraphed for from Arlington, thirty miles distant, to see Mrs. J. There being no roads to drive on and no train until morning, I reached the case at 8 A.M. on the 22d. The woman was a Norwegian about thirty-five years old, the mother of four children. She was sitting up in bed, her clothing literally torn from her body, clutching her hair and spitting spitefully—in short, a raving maniac. Her husband and a neighbor were trying to hold her and informed me that she had been in this condition all night. Without any ceremony I injected one-fourth grain of morphin. In about half an hour the woman quieted down and dropped asleep. Her pulse was 120, her temperature 102.5°. I elicited the following history from her husband: Ten or twelve days before, she was seized with a chill followed by pain in the chest, a severe cough, and expectoration of bloody sputa. The tongue was heavily coated with a dark fur, the cheeks were hectic, and the appetite lost. It was thought the woman had influenza. These symptoms finally abated and seemed to be getting well. She had been asleep on the afternoon of the 21st, and suddenly awoke, screaming "fire." The delirium continued until I injected the morphin. Physical examination showed the middle and lower lobes of the right lung to be in a state of hepatization. I prescribed ammonium carbonate, ʒij; infusion of digitalis, syrup. pruni virginianæ, āā ʒjss, a teaspoonful of the mixture to be taken every four hours. The woman made an uninterrupted recovery. I confess, had I known of the existence of pneumonia I should have been a little more conservative in the use of morphin, although in a similar case I should not hesitate to use it again.

Yours truly,

M. B. MATTICE.

SEDRO, WASHINGTON.

NEWS ITEMS.

A Summer Course in Neurology and Psychiatry will be given at the Illinois Eastern Hospital for the Insane, at Kankakee, Illinois, commencing June 4, 1894, and continuing six weeks. It will be conducted under the direction of Dr. Clarke Gapen, Superintendent, by Dr. Adolph Meyer, Pathologist to the Illinois Eastern Hospital, with the assistance of the Medical Staff.

It has been arranged to have a full course with daily lectures and practical work in the laboratory and wards, and an abridged course with two lectures a week.

Recent Appointments at Jefferson Medical College.—At a recent meeting of the Board of Trustees of Jefferson Medical College, Dr. W. Joseph Hearn was elected Clinical Professor of Surgery; Dr. Edward P. Davis, Clinical Professor of Obstetrics; and Dr. S. MacCuen Smith, Clinical Professor of Otology.

BOOKS AND PAMPHLETS RECEIVED.

The Measured Effects of Certain Therapeutic Agents, among which especially are Lavage, HCl, and Intra-gastric Electricity, upon the Secretory and Motor Functions of the Stomach in Cases of Chronic Catarrh (Glandular Gastritis). By D. D. Stewart, M.D. Reprinted from the Therapeutic Gazette, 1893.

Atlas of Head Sections. Fifty-three Engraved Copper Plates of Frozen Sections of the Head, and Fifty-three Key Plates with Descriptive Texts. By William MacEwen, M.D. New York: MacMillan & Co., 1893.

The Pathological Signification of Immunity. By A. L. Chapman, A.M., M.D. Reprinted from the Kansas City Medical Record, 1893.

Shipowners and Ships' Surgeons. Including Truth's Article, "Doctors at Sea." By Charles Henry Leet. Pamphlet. Liverpool: Seaforth, 1893.

Mechanical Aids in the Treatment of Chronic Forms of Disease. By George H. Taylor, M.D. Pamphlet. New York: George W. Rodgers, Publisher, 1893.

Two Cases of Hyaline Formations in the Optic Nerve. By John T. Carpenter, Jr., M.D. Reprinted from the International Medical Magazine, 1893,

The Students' Quiz Series. Surgery: A Manual for Students and Practitioners. By Bern B. Gallaudet, M.D., and Charles N. Dixon-Jones, B.S., M.D. Philadelphia: Lea Brothers & Co., 1893.

Is the Philosophical Practice of Medicine not Jeopardized by the Modern Methods of Venders of Drugs? By Henry L. Coit, M.D. Pamphlet, 1893.

Recent Progress in Electro-gynecology. By G. Betton Massey, M.D. Reprinted from the Journal of the American Medical Association, 1893.

Prevalent Errors in the Treatment of the Diseases of Women. By G. Betton Massey, M.D. Reprinted from the Therapeutic Gazette, 1893.

Changes in the Urine Subsequent to Nephrectomy; Two Cases. By P. Max Foshay, M.S., M.D. Reprinted from the International Medical Magazine, 1893.

A Text-book of Physiology. By M. Foster, M.D., LL.D., F.R.S. Sixth edition. Part I, Comprising Book I. New York and London: MacMillan & Co., 1893.

Traumatisms and Traumatic Aneurisms of the Vertebral Artery and their Surgical Treatment, with the Report of a Cured Case. By Rudolph Matas, M.D. Reprinted from the Annals of Surgery, 1893.

Manual of Physical Diagnosis for the Use of Students and Physicians. By James Tyson, M.D. Philadelphia: P. Blakiston, Son & Co., 1893.

Funny Bone. A Book of Mirth for Doctors, Druggists, Dentists, Medical Students, and Others. St. Louis: The Funny Bone Publishing Co., 1893.

Annual Report of the Central Lunatic Asylum of the State of Virginia (Petersburg, Va.), for the Fiscal Year ending September 30, 1893. Richmond: J. H. O'Bannon, Superintendent of Public Printing, 1893.